

# ORTHOPAEDIC

## Physical Therapy Practice

THE MAGAZINE OF THE  
ORTHOPAEDIC SECTION, APTA



VOL. 19, NO. 3 2007



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# ORTHOPAEDIC



## Physical Therapy Practice

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## Time...Or Lack Thereof!

As I write the editorial for this issue summer is in full swing. I am sure many of you approach summer as a time to get in a well deserved vacation and also do some things you didn't have time to do during the other seasons. However, like most intentions we sometimes lose ground and may end up feeling that time passes much too quickly. We often wish we could turn back the hands of time or freeze time altogether.



Such is not the case. The old adage "time marches on" is so applicable to not only our own personal endeavors but also our patients as well. On one hand the passage of time can be looked upon as facilitating the healing process. However, from the patient's perspective time to heal is never quite fast enough. Most of us commonly hear frustrations by patients who just feel that they should be healing faster so they can get on with life. Today's hectic lifestyle and fast pace doesn't leave much time for a "stop and smell the roses" mentality. I remember one of my former professors saying that it's not about being busy but it's about being productive and efficient. How true.

In the context of patient care, time is critical but it is not always about racing against some ill conceived deadline. As therapists we have the advantage of past experience with previous patients to allow us to effectively gauge the body's response to injury and healing. One of our main contributions to patient recovery is to provide advice in order to prevent patients from becoming adversarial with the healing process by overdoing the rehab because they may think more is better and healing will occur more quickly. Patient education on the healing process is essential to determining an effective outcome. Patients routinely are not aware of what processes are needed to allow healing to take place. For example, they may see small arthroscopic portals from surgery and erroneously assume that the small in-

decisions are directly related to a minor surgical procedure. This is far from true.

A critical component to physical therapy is educating the patient about the healing process and also providing perspective on how to use the time to heal most effectively. Some things cannot be rushed even if outside restraints demand expediency

(ie, insurance coverage limitations, patient scheduling, etc). One of our daily responsibilities is to often enlighten the patient about their injury and predicted course of healing and also to provide strategies to enable therapy to fit into a patient's day. Often, compliance and patience need to work hand in hand.

Critically evaluating and trying to optimize time to heal (ie, ACL reconstruction rehabilitation times have significantly been reduced) has benefits in fostering treatment efficiency but sometimes injuries just take time to heal. Fracture healing is one such example where time predictions can be estimated with some certainty. Rush through the rehab process of a surgically repaired achilles tendon or ignore time-to-heal factors and prematurely strengthen a postoperative cuff repair and see what happens.

Presently there has been much publicity about minimally invasive surgical procedures and how such procedures can hasten recovery and function. The general public is enticed by sensationalized claims by the media and enthusiastic surgeons who also can get caught up in the hype without providing the data to support such claims. We have a responsibility to our patients. We need to make sure they fully understand the ramifications of the medical choices they make so as to not only consider time but also outcome. It is up to us to provide them with valid evidence based resources so they can make sound decisions and fully understand all aspects of care; injury, intervention, and healing.

As health care providers we are time conscious but still at an advantage when compared to other medical professionals. Physicians commonly see patients in 10-minute intervals. We still have the advantage of time with our patients. Granted it is less than what it used to be, but we also have new tools available to share information with patients (via email, directing patients to our own websites for information or other credible medical websites, etc). Patients appreciate this intangible and personal component of physical therapy and often remark on our ability to spend time as being unique to the physical therapy experience.

Today it is common to hear from patients, "the doctor saw me for only 5 minutes" or "I was not able to ask all of my questions because the doctor ended the session abruptly." Or what about, "I had to wait 45 minutes beyond my scheduled time to see the doctor." We are fortunate. We usually have patients at our service for at least one hour. On average this represents 6 times the amount of time a physician sees the patient. When we add the average 3 times per week scheduling we are loaded with time to listen, treat, teach, and motivate the patient toward a timely recovery! What we do with ALL THIS TIME is up to us. We should make the most of it but not become a slave to it. It's how we use it that counts for us and our patients.

### REFERENCES

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Editor, OP

I hope that you have had a safe and enjoyable summer and that you have found time to relax with your family and friends. The upcoming Labor Day weekend is like the beginning of the new year for me and is a time of much excitement with the start of the new academic year and most importantly the start of the football season! For those that know me, they understand how important the latter is with my family and friends.

Over the summer the Section Office and the Section Board of Directors have continued to work for the benefit of the Section members. The following is a brief update of recent Orthopaedic Section activities and achievements of our members.

Approximately 2 years ago, the Orthopaedic Section began to put funds in a reserve account to establish an endowment to support Section research activities. This summer, the endowment fund surpassed \$1 million. The return on the principal from this fund will be used to support research activities. For a long time, the Section has had a research grant program for Section members. The grant program provided funding for 3 grants of up to \$10,000 per grant. This grant program has been supported by funds from the operating budget. To determine the best use of the additional funds from the research endowment, the Section will be convening a task force in August to make recommendations for future directions of the Orthopaedic Section grant funding program. The task force will be chaired by Lori Michener, who is the chair of the Research Committee. Task force members include Bill Boissonnault, Kelley Fitzgerald, Julie Fritz, Greg Hicks, Phil McClure, and Guy Simoneau.

This summer, under the leadership of Adam Smith, the Membership Committee developed a new program to attract recent graduates to become Section members. Under this program, physical therapists who have graduated within the last 2 years can receive a 50% reduction in Section membership dues by returning to their



school to give a presentation about their transition from student to graduate and how being a member of the Orthopaedic Section has helped them in this transition. The Membership Committee has developed a PowerPoint presentation describing the history and benefits of membership in the Orthopaedic Section that can be incorporated into the graduate physical therapist's presentation. Physical therapists are eligible for this reduction in dues only during the first 2 years after graduating. Physical therapists interested in participating in this program should contact the Orthopaedic Section office for further details.

The Orthopaedic Section was well represented at the APTA House of Delegates that was held in Washington, DC May 20<sup>th</sup> to 23<sup>rd</sup>. Robert Rowe, Chair of the Section's Practice Committee, served as the Section's Delegate. Under Bob's leadership, the Orthopaedic Section introduced an amendment of the APTA Bylaws that will enable physical therapists who are enrolled in APTA credentialed postprofessional residency and fellowship programs to be eligible for reduced dues under the Physical Therapist—Postprofessional Student category. This motion had approximately 35 co-sponsors and was passed by a 403 to 1 vote. As a result of this bylaw amendment, APTA dues are \$150 and Orthopaedic Section dues are \$15 for individuals enrolled in an APTA credentialed residency or fellowship program. These reduced dues will provide an additional incentive to individuals to enroll in an APTA credentialed residency or fellowship program and will provide an incentive for residency and fellowship programs to seek APTA credentialing.

Also at the APTA House of Delegates, several Orthopaedic Section members were elected or re-elected to positions on the APTA Board of Directors. Those individuals include:

- Sharon Dunn, PT, PhD, OCS—elected Director

- Laurita Hack, PT, DPT, MBA, PhD, FAPTA—elected Vice Speaker of the House
- Paul Hildreth, PT, DPT, MPH—elected Nominating Committee Member
- Stephen McDavitt, PT, MS, FAAOMPT—re-elected Director
- Babette Sanders, PT, MS—re-elected Secretary

Several Orthopaedic Section members received prestigious awards at PT 2007 in Denver, CO. **Joseph Godges**, Orthopaedic Section Treasurer, presented the Maley Lecture that was titled "Clinical Practice in Orthopaedic Physical Therapy: The Crime of Mediocrity; the Beauty of Branding Excellence." In the lecture he asked "What are we doing by adding a length of descriptors after 'PT': ACT, Cert MD, CHT, CMD, COMPT, CSCS, DPT, FAAOMPT, FASM," and so forth. He continued, "Do all of these alphabets lessen the quality and weaken the designator 'PT'?" Godges added, "Physicians do not add letters after their names as they gain additional knowledge and their patients understand this. In research publications, physicians are identified simply as 'MD.'" He suggested that PTs adopt a designator of PT, or perhaps DPT. He also said that PTs should adopt a brand that identifies PTs as those who help patients optimally move and function.

**Thomas McPoil**, Vice President of the Orthopaedic Section, was elected to be a Catherine Worthingham Fellow. The Catherine Worthingham Fellowship was established in 1980 to recognize those persons whose work, like the distinguished woman honored by this award, has resulted in lasting and significant advances in the science, education, and practice of the profession of physical therapy. Tom has made ongoing and lasting contributions in all three areas of science, education, and practice of physical therapy for patients with impairment of the foot and ankle.

**Anthony (Tony) Delitto** was chosen to deliver the 39th annual Mary McMillan Lecture at PT 2008 in San Antonio, Texas. The Mary McMillan Lecture Award, established in 1963, is APTA's highest honor.

Tony is a long-time member of the Orthopaedic Section and he has received numerous Association honors, such as the Golden Pen Award and the Marian Williams Award for Research in Physical Therapy. He has earned the Orthopaedic Section's Steven J Rose Award multiple times. He also is

well-known for his efforts with students at the University of Pittsburgh involving the Foundation for Physical Therapy's Pittsburgh-Marquette Challenge fundraiser. Tony also received this year's Lucy Blair Service Award.

Other Orthopaedic Section Members

that received awards at PT 2007 can be found on page 155.

As always, if you have any questions concerning the Orthopaedic Section or if you would like to become more involved in Section activities, please contact me or the Section office.

## **Fundraiser for the Minority Scholarship Fund**

The Fifteenth Annual Fundraiser for APTA's Minority Scholarship Fund *Celebration of Diversity* is scheduled for Saturday, October 6, 2007 at the Science Museum of Minnesota in St. Paul, MN. The fundraiser is being co-hosted by the Academic Administrators and Clinical Education Special Interest Groups of the Section for Education. Single ticket prices for the dinner/dance are \$100. Contributions of any amount are welcome. You can also participate by donating items for the Silent Auction. Ad space in the souvenir book may be purchased at \$500 for a full page, \$250 for ½ page, and \$100 for a business card. For further information, please contact APTA's Department of Minority/International Affairs at 800/999-2782 ext 8554.

# Isolated Posterior Cruciate Ligament Injuries

## Part II: Natural History, Rehabilitation Principles and Case Study

Christopher R. Carcia, PhD, PT, SCS  
RobRoy L. Martin, PhD, PT, CSCS

### ABSTRACT

This is the second paper in a 2-part series. Part one reviewed the anatomy, biomechanics, mechanism of injury, physical examination, and differential diagnosis of the PCL and PCL injuries. The purpose of this second part is to review the natural history and rehabilitation principles for individuals with PCL injuries. The natural history of the isolated PCL injury has not been well defined. Most individuals seem to be able to return to a high level of activity with nonoperative treatment. However, some individuals have progressive deterioration and disability. Factors such as mechanism of injury, the amount of posterior translation, and quadriceps strength have been areas of study. Research in these areas however has not produced consistent results. Given the fact most individuals undergo initial nonoperative treatment, the principles involved in rehabilitating individuals with a PCL injury are critical. The case study included in this second part highlights several of the clinical features unique to the PCL deficient patient. The elements of this case study further serve to reinforce concepts covered in parts one and two of this series.

### INTRODUCTION

Presently, it is not possible to predict which patients with an isolated tear of the posterior cruciate ligament (PCL) will have a favorable outcome and which will have deterioration in their status over time. Factors associated with the prognosis following isolated PCL injury including, mechanism of injury, the amount of posterior translation, and quadriceps strength have been studied. The results of these studies have yielded inconsistent results. For the isolated PCL injury, treatment outcomes for surgery

and conservative care seem to be similar. Therefore, the initial treatment recommendation for isolated (Grade I & II) PCL tears is nonoperative. Rehabilitation principles for conservative care should consider quadriceps strengthening, protection of articular surfaces, gastrocnemius strengthening, preservation of secondary restraints, enhancing muscle response time, bracing, and orthotics.

### NATURAL HISTORY

The natural history of the isolated PCL tear managed conservatively is not clear. With adequate rehabilitation, it is possible to resume a high level activity, at least in the short term following a PCL tear. This would include returning to professional athletics.<sup>1,2</sup> Several studies found good to excellent outcomes with nonoperative treatment, as subjects reported little to no subjective complaints or decrease in functional ability.<sup>3-6</sup> However, other work suggests that increasing symptoms and a decline in function can result following a PCL tear.<sup>7-9</sup>

Presently, it is not possible to predict which patients will obtain a favorable clinical result and which will worsen over time.<sup>3</sup> Less favorable outcomes in the PCL deficient patient have been observed following motor vehicle accidents when compared to injury that occurred during sport activity.<sup>10</sup> This suggests that the prognosis for injury that occurred at higher velocities and forces levels is less favorable when compared to injury that occurred at lower velocities and likely lower force levels.

In an attempt to identify the factor or factors associated with the prognosis following isolated PCL injury, investigators have studied the relationship between the amount of posterior translation and patient outcome. Two studies concluded that the quantity of posterior translation was not related to outcome scores.<sup>3,6</sup> Contrary to this, other work has identified a significant relationship between posterior laxity and failure of

conservative treatment<sup>11</sup> as well as increased subjective complaints.<sup>8</sup> The relationship between posterior laxity, articular degeneration (commonly on the posterior aspect of the patella and medial femoral condyle), and time from injury has also been studied. While Shelbourne et al did not identify a relationship between posterior laxity and articular degeneration<sup>12</sup> evidence is mounting to support the notion that articular degeneration is related to time from injury.<sup>7-9</sup>

In addition to posterior translation, the relationship between quadriceps strength and outcome following a PCL tear has also been studied. One characteristic of PCL deficient patients who have achieved a satisfactory result seems to be increased quadriceps strength.<sup>1,5,10</sup> Parolie and Bergfeld identified that subjects who successfully returned to their prior level of activity had greater quadriceps strength on their affected side when measured with an isokinetic dynamometer.<sup>5</sup> However, symmetrical quadriceps strength by itself is not always affiliated with a good outcome. Keller and colleagues reported that despite near symmetrical quadriceps strength (99% compared to contralateral) in a group of 40 patients with isolated PCL injury, increasing symptoms and degenerative changes were apparent the longer the time from the date of injury.<sup>8</sup>

Treatment outcomes for surgery and conservative care for the isolated PCL lesion seem to be similar. Therefore, the initial treatment recommendation for grade I and II injuries is nonoperative. Surgical intervention for the isolated PCL tear is considered when conservative treatment fails.<sup>13,14</sup>

### REHABILITATION PRINCIPLES

As conservative care is currently preferred for the initial treatment of isolated PCL injuries, physical therapists must be familiar with several rehabilitation principles to maximize recovery with this population. It is not the intent of this section to provide a rehabilitation protocol or recipe but rather

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present a few guidelines for the rehabilitation professional to consider. The following guidelines are based on evidence from the literature as well as our own clinical experiences.

### Strengthen the Quadriceps

Converse to ACL injuries where hamstring strengthening is emphasized to limit anterior translation, strengthening of the quadriceps is recommended for PCL injuries. A stronger quadriceps muscle may not only encourage anterior tibial translation (reduction of a posterior subluxation) but also may assist by absorbing forces across the joint thereby minimizing articular deterioration. As previously noted, some evidence exists to support a correlation between strong quadriceps musculature and favorable outcomes in this population.<sup>1,5,10</sup>

### Protect Articular Surfaces

As it is not possible to predict who will or will not develop premature degenerative arthritis of the patellofemoral joint and medial femoral condyle, it is our responsibility to select rehabilitative exercises that minimize stress across these aspects of the knee. To minimize force across the patellofemoral joint, biomechanical data suggests having patients perform open kinetic chain knee extension from 90° to 45° and closed kinetic chain exercise from 45° to full extension.<sup>15</sup> A common exercise we use is terminal knee extension in standing with resistance applied distal to the knee (Figure 1). Additionally, patients should be educated about the implications of 'abusing' their knee given



**Figure 1.** Terminal Knee Extension (TKE) in standing with resistance distal to the knee.

the long-term ramifications. It is our opinion that high impact activity (ie, running, basketball) should be resumed with caution and only when an appropriate progression of functional activity has been tolerated. Any activities that increase symptoms (ie, pain) and signs (ie, swelling) should be curtailed. Aerobic exercises that are usually well tolerated include cycling, elliptical trainers, cross-country skiing, and swimming. Patients who return to running should be counseled to avoid asphalt as much as possible and use footwear with increased shock-damping capability.

### Train the Gastrocnemius

Theoretically, with the distal end fixed, a concentric contraction of the gastrocnemius would glide the femoral condyles posterior thereby reducing posterior subluxation of the tibia on the femur. This hypothesis has support using a cadaveric model.<sup>16</sup> Specifically, at all tested knee flexion angles, tension transmitted via the gastrocnemius translated the tibia anteriorly.<sup>16</sup> In-vivo, earlier contraction of the gastrocnemius has been observed in PCL deficient patients during isokinetic knee flexion when compared to subjects with healthy knees.<sup>17</sup> The authors theorized that this may be a compensatory strategy to minimize tibiofemoral translation. Collectively, this information suggests that the addition of gastrocnemius training may be advantageous to patients with isolated tears of the PCL. Additional study regarding the influence of this variable is warranted.

### Preservation of Secondary Restraints

Loss of a primary restraint does not necessarily lend itself to excessively large amounts of displacement on physical exam.<sup>18</sup> This is explained given that clinical exam forces are low when compared to those forces that occur during function. Secondary restraints have sufficient tensile strength to minimize objective physical examination stresses but not functional forces. However, when secondary restraints are lost in conjunction with the primary restraint, larger displacements on physical examination are evident.<sup>18</sup> Larger displacements posteriorly increase pressure on the articular cartilage.<sup>19</sup> Practically, we must realize the negative effects of gravity and certain exercises such as open kinetic chain hamstrings on posterior translation. One must question when open kinetic chain hamstring exercises should be

prescribed during the rehabilitation process for this population secondary to the posterior or shear force associated with this exercise.<sup>20</sup> Data indicates PCL deficient patients do exhibit hamstring weakness and therefore this muscle group is in need of rehabilitation.<sup>21</sup> We agree that resisted open kinetic chain knee flexion exercises are best to be avoided and prefer to strengthen the hamstrings in a closed kinetic chain environment. This may be accomplished by having patients perform trunk and pelvic flexion on a fixed femur with the knee close to extension. Examples of this type of exercise include a dead-lift (Figure 2) or good-morning (Figure 3). We believe these exercises minimize posterior shear due to compression of the joint as well as substantially decreases the angle of pull



**Figure 2.** Dead-lift exercise with bilateral lower extremity.



**Figure 3.** Good-morning exercise.



of the hamstrings on the posterior tibia. We however do not have objective data to support our contention. Another exercise that engages the hamstring muscle group and that likely limits posterior tibial translation due to its weight bearing component is a bridging exercise (Figure 4). Each of these exercises can be performed either unilaterally or bilaterally, with or without external loads. Quantification and comparison of posterior shear forces in this population during several closed kinetic chain exercises is needed.



**Figure 4.** Unilateral bridging exercise.

### Enhance Muscle Response Time

While much time and effort has been spent studying muscle response time in the anterior cruciate ligament (ACL) deficient population, little research has focused on the PCL injured population. It has been suggested that ‘copers’ of an ACL tear have good ‘reflex control of the hamstrings.’<sup>22</sup> While a strong hamstring group in an ACL deficient knee is advantageous, if muscle response time is not enhanced, instability may be inevitable. It is logical that a ‘coper’ of a PCL tear would possess good ‘reflex control of the quadriceps.’ Cain and Schwab documented early quadriceps contraction in a case study of a professional football player during the gait cycle.<sup>1</sup> It may be possible through challenging agility, balance, and coordination that this ‘reflex control’ may be improved.<sup>23</sup> Clearly, additional study is necessary to support this hypothesis.

### Bracing and Orthotics

For the symptomatic patient, the use of a PCL brace to mechanically minimize posterior translation may be advantageous. We are unaware however of any data supporting

their efficacy in this population. For patients with medial compartment arthritis or a varus thrust, a trial of a lateral heel wedge may be beneficial to relieve symptoms.<sup>24</sup> Lateral heel wedges have been shown to decrease adduction moments at heel strike<sup>25</sup> and reduce pain in patients with mild to moderate medial compartment arthritis.<sup>24</sup> As with the above recommendations, additional study specific to the isolated PCL deficient population is necessary.

### CASE STUDY

The case study outlined below highlights several of the clinical features unique to the PCL deficient patient. The elements of this case study further serve to reinforce concepts covered in parts one and two of this series.

#### Case Description

A 23-year-old female accountant was referred to physical therapy by her primary care physician (PCP) with a diagnosis of left patellofemoral joint (PFJ) pain. At this time, her primary complaint was that of knee pain. She perceived the pain to be deep within the joint. On a scale of 0 to 10 with 0 representing ‘no pain’ and 10 representing ‘acute, excruciating pain,’ she reported ‘no pain’ at rest and pain that was equal to a 4 while running or playing field hockey. She reported her pain started approximately 3 months ago when she fell with her knee bent while playing recreational field hockey. At this time, while she was unable to continue activity, she did not seek medical intervention. She recalls mild local pain and swelling that resolved over a week to 10 days. Afterwards, she resumed normal activity including field hockey 2 weeks after her injury. She denied any significant past injury to her knee. She indicated her PCP referred her for radiographs (anterior-posterior and lateral) which were negative for a fracture. The Knee Outcome Survey (KOS)<sup>26</sup> was used to assess her self-reported level of function. Her score on this instrument was 85%.

#### Physical Examination

The elements of the exam were performed as previously described in detail.<sup>27</sup>

#### Observation/Inspection

The patient displayed a normal heel-toe gait on level surfaces without deviation. Upon inspection, no swelling, ecchymosis, or abrasions were apparent. Further, the joint was not red in appearance or warm to touch.

### Range of Motion

Passive range of motion revealed symmetrical and painless knee extension. Passive flexion however was slightly limited (10°) and painful. The end feel for extension was ‘normal’ while the end feel for flexion was ‘empty.’ With passive flexion, near the end of her available range, the ‘deep’ pain in her knee was reproduced.

### Strength Testing

All major muscle groups of the hip and knee were tested using standard manual muscle tests. With the exception of the left quadriceps (4/5), all muscle groups were graded as normal (5/5). The left quadriceps manual muscle test grade regardless of knee angle (15°, 45°, 75°, or 90°) was not influenced by pain and appeared to be a result of true weakness. Furthermore, a medial glide of the patella during open chain knee extension and a lateral step-up did not alter the patient’s symptoms.

### Special Tests

A lateral glide of the patella was negative for apprehension. McMurray’s and Apley’s compression tests likewise were negative. No pain or increased excursion was noted with varus/valgus tests. At 90° of flexion, the tibial plateaus were noted to be just anterior (though nearly flush) with the femoral condyles. The first attempts of the Lachmann test revealed increased anterior excursion with a solid end point. However, once the tibial condyles were normalized, anterior translation was found to be symmetrical to the uninvolved knee. The posterior drawer test revealed increased motion (5-10 mm) with soft end point. The posterior sag test was also positive with the tibial plateaus being lower (nearly flush with the femoral condyles) on the involved knee compared to the uninvolved knee. The external rotation or dial test revealed a very slight increase in external rotation at 90° but not at 30°.

### Palpation

No tenderness was elicited with palpation of the tibiofemoral joint line, the soft tissue, or bony structures of the knee.

### Evaluation

At this juncture while it was possible that some of the patient’s symptoms were the result of patellofemoral joint pain, several signs suggested PCL pathology must

be considered. First, the patient reported falling on a bent knee. Upon detailed questioning, she could not recall if the fall occurred with the foot in dorsi- or plantarflexion. As noted in part one, with the foot in dorsiflexion, one is more likely to injure the patellofemoral joint (PFJ) while with the foot in plantarflexion, it is possible to strike the superior, anterior aspect of the tibia. By striking this aspect of the tibia, it is likely the tibia will be driven posterior thereby challenging the PCL. Second, the patient perceived her pain to be 'deep' in the joint. Most, though certainly not all, patients with PFJ pathology experience pain that is more superficial, in the anterior knee region. Third, knee flexion range was slightly limited and painful. This sign is more likely the result of a PCL tear than PFJ pathology. Fourth, quadriceps testing at all angles did not reproduce the patient's symptoms. The patient did however exhibit weakness of the quadriceps. While our experience is that patients with PFJ pain do frequently display weakness of the quadriceps with manual muscle testing, it is often accompanied by a reproduction of their anterior knee pain. Fifth, when compared to the unaffected, contralateral knee, ligamentous testing revealed posterior laxity. While the Lachmann test demonstrated increased total posterior-anterior excursion this was a result of the tibia starting further posterior and was not in our opinion a result of a compromised anterior cruciate ligament. This notion was further reinforced by the presence of a solid 'end-feel' during this special test. Sixth, no tenderness was elicited with palpation. Most of the PFJ patients we have worked with over the years have been tender to palpation at some aspect around the anterior aspect of the knee.

### Diagnosis/Plan of Care/Prognosis

It was our opinion that the patient's signs and symptoms were consistent with an isolated PCL injury and not the result of PFJ injury as indicated by her PCP. A plan of care indicating our assessment as well as plan for intervention was sent to her physician. We felt the patient's prognosis at least short term (1-3 years) was excellent, given her age and willingness to limit her sports related activity. The physician signed and returned the plan of care and subsequently ordered an MRI of the patient's knee.

### Intervention/Outcome

The patient attended physical therapy 2 times/week for 4 weeks. Initially, treatment consisted of stationary cycling for 10 minutes, passive range of motion with the tibia supported to minimize excessive posterior tibial glide, and basic quadriceps and calf exercises followed by ice. Quadriceps exercises consisted of open kinetic chain knee extensions from 90° to 45° against external resistance, closed kinetic chain activities (mini-squats, terminal knee extensions versus the resistance of elastic tubing/bands, and unilateral step up/downs). For the calf group, the patient performed weight bearing heel raises. Initially, heel raises were performed with bilateral lower extremities on the floor. In a graduated manner as tolerated and as form allowed, heel raises were progressed to unilateral stance on the left on the edge of a stair. All exercises were performed without the reproduction of symptoms. At the end of week 2, we received notice from the patient that the MRI indicated her PCL had sustained a complete mid-substance tear. Her PCP recommended continuing with conservative treatment. At the beginning of week 3, the patient demonstrated full and painless range of motion and the quadriceps were now graded as a 4+/5. Swelling remained absent and gait unimpaired. The patient's program was therefore advanced to include aggressive strengthening and proprioceptive activities. This included the unilateral dead-lift, resisted plantarflexion on StairMaster® (Nautilus Inc, Vancouver, WA) (Figure 5) and backwards walking on the treadmill. A progression of functional sports related activities was also added as tolerated. At the end of the fourth week the patient reported feeling 100% normal. This was confirmed by a 100% score on the KOS. Quadriceps strength was 5/5 and she was able



**Figure 5.** Resisted plantarflexion on StairMaster® (Nautilus Inc, Vancouver, WA).

to tolerate a full progression of functional activity including sport specific activities. At this time the patient was discharged to a home/gym program. The patient returned to full activity including recreational field hockey without pain or limitation.

### CONCLUSION

The natural history with conservative treatment following PCL pathology remains unpredictable. This may be due in part to its low incidence. While some patients, at least in the short term, appear to escape unscathed, evidence is mounting of an association between degenerative arthritis (particularly to the patellofemoral and medial tibiofemoral joints) and the duration of time from the date of injury. Management of patients suffering from chronic, symptomatic PCL tears are likely to be as, if not more challenging than those afflicted with the more common ACL tear. Despite the long-term prognosis, the outcomes from current surgical techniques are not superior to that of conservative care for the isolated PCL injury. Therefore, it is critical that the orthopaedic/sports physical therapist be knowledgeable with respect to the history, examination, diagnosis, and rehabilitation of these lesions. It is our belief that interventions based on the recommendations, provide the patient with the best opportunity for a successful outcome.

In a later issue of *Orthopaedic Physical Therapy Practice*, surgical reconstruction and postoperative rehabilitation will be addressed.

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# Progressive Exercise Alone: Is it Enough?

## An Evidence-based Case Report

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### ABSTRACT

**Background and Purpose:** Many studies have been done to determine how to most effectively treat chronic back pain. Although current research advocates for a progressive strengthening program using a cognitive behavioral approach, this is still far from mainstream. The purpose of this case report is to better familiarize physical therapists with a cognitive behavioral approach to treating chronic back pain. **Case Description:** The patient is a 25-year-old female referred for physical therapy for upper back and neck pain. Her history includes scoliosis with Harrington rod placement at age 11 and revision at age 16. She feels hopeless about her pain, has stopped working, and rarely leaves home. The patient's husband and mother are very supportive and concerned about the patient. **Outcome:** Following 6 weeks of treatment, the patient's attitude changed tremendously regarding her pain. Her Oswestry Back Pain Disability Questionnaire (ODI) score reduced from 82% to 2%. She resumed driving, working, and regular exercise. **Discussion:** The evaluating therapist was hesitant initially about starting physical therapy since there was such a strong psychological component for the patient. After consultation with a senior physical therapist and the physiatrist, this patient was placed in a progressive strengthening program with a strong cognitive behavioral approach and she did extremely well. With direct access and autonomous practice, it is important for therapists to consider such an approach with chronic pain patients.

**Key Words:** chronic back pain, physical therapy, exercise, depression, disability, rehabilitation

### INTRODUCTION

Chronic back pain is common. An epidemiological survey done on western-industrialized countries revealed that among 58% to 84% of the adult population reports at least one episode of low back pain during their life.<sup>1</sup> In a study by Moffett et al, recurrence of low back pain is 50% in the 12 months following an acute episode.<sup>2</sup> "In the United states, spinal fusions for 'degenerative changes' rose sharply from around 11,000 operations per year in 1996 to 37,000 per year in 2001 (a 336% increase). This is despite questionable evidence that this treatment is more effective than an intensive rehabilitation approach."<sup>3</sup>

There have been numerous studies done by physicians, physical therapists, and psychiatrists that have studied chronic back pain and what is the most effective treatment.<sup>1,3-11</sup> A psychological component often accompanies many of these chronic back pain patients.<sup>4,5,7,12-14</sup> Research supports different types of effective tools that evaluate this psychological component.<sup>1,8,15-17</sup> These tools are becoming more widely used by therapists today as they value their effectiveness as part of the total patient evaluation.

Patients with chronic pain often enter a cycle that is very difficult to escape.<sup>4,5,8,12,16-18</sup> The cycle is based upon a patient who has or previously had pain and who avoids certain movements for fear of exacerbating symptoms or causing pain to return. The patient's flexibility and strength often decrease due to their avoidance of movement. This further lessens the support and stability of the spine and pain often increases. This can then lead to a further decrease in movement and repetition to the cycle.

Ideally, the goal would be to work with these patients with low back pain before they have hit this level of chronic pain.<sup>6,15,17</sup> Therapists would then be able to screen patients in the acute setting for possible chronic pain behaviors and alter their treatment accordingly.<sup>15,16</sup> Unfortunately, effective screening is lacking and no set process for treating pa-

tients with chronic low back exists. Some of these patients may see up to 20 different caregivers for their pain.<sup>5</sup>

Therapists primarily treating chronic pain need to be familiar with how this process starts and previous conservative treatments that the patient has had.<sup>1,19,20</sup> Current practicing therapists and students need to be educated on what is the most effective treatment out there for these patients. Therapists need to learn how to approach pain behaviors and understand the concept of extinction by ignoring pain behaviors.<sup>4,7,18,21</sup> Because fear and anxiety are such significant factors in patients with chronic pain, therapists need to understand precipitating behaviors and that normal back function can return for a patient even with a history of chronic back pain.<sup>1,4,5,7,16</sup> They need to have a strong belief in this treatment technique and understand how to impart these beliefs on their patients.<sup>6,22</sup> A therapist's fear about his or her own pain experiences may lead to a bias in imparting these fears on their patients.<sup>4,5,19</sup> The purpose of this paper is to provide evidence that exercise along with cognitive behavioral therapy is effective in treating chronic low back pain.

### CASE DESCRIPTION

The patient is a 25-year-old female with a history of scoliosis. She was referred to the case clinic by a physiatrist who wanted the patient to get involved in a progressive strengthening program with a cognitive behavioral approach. This patient had a Harrington rod placed at age 11 and her spine was then reconstructed and a new rod was placed at the age of 16. The patient's chief complaint is upper back and neck pain for the past 3 months. She reports that she has stopped working because of the pain and rarely leaves the house because she lives in a third floor walk-up. She spends most of the day in a recliner chair and gets frequent assistance from her husband. The patient takes Ibuprofen to manage her symptoms. The patient is very tearful during the subjec-

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tive portion of the exam. For her appointment, the patient was accompanied by both her husband and mother who were there for social support and drove a few hours to even get there. They appeared extremely supportive of the patient and verbalized being willing to assist in any way possible. The patient's past medical history included a dislocated right shoulder and a subluxed left patella.

## TESTS AND MEASURES

Range of motion measurements were taken of the entire spine using an inclinometer.<sup>30</sup> Cervical flexion was 50°, extension 35°, right rotation 30°, left rotation 40°, and bilateral side bending 40°. The lumbar spine measurements were flexion 90°, extension 10°, and bilateral side bending 10°. Straight leg raise was 60° bilaterally. Deep tendon reflexes in bilateral upper and lower extremities were normal. Strength was tested through manual muscle testing. Lower extremity strength was 4/5 throughout. Abdominal and paraspinal strength was 1/5. Middle trapezius strength was 3+ left and 3 right. Latissimus strength was 3+ left and 3-right. Lower trapezius strength was 2/5 bilaterally. Posture was within normal limits except for a decreased lumbar lordosis and a mild forward head posture. Otherwise, the patient appeared generally deconditioned.

In order to assess disability, the patient was asked to fill out an Oswestry Back Pain Disability Questionnaire (ODI) form in which she scored an 82%. The Oswestry Back Pain Disability Questionnaire (ODI) form is a tool that consists of a total of 9 questions as well as a tic mark scale with 12 possible tics to rate back and arm pain from 'no pain' to 'worst possible pain.' The patient is asked to try and fill it out without help giving the best possible answer. Their score is then added up and divided by a possible total of 45 and then multiplied by 100. This percentage indicates the amount of time in everyday life that pain limits her from functioning normally.<sup>23</sup>

On the patient's second visit into the clinic, she was given 2 tests to determine baseline strength in order to start a strengthening program for her. Her back extension strength was tested on a Cybex® back machine using a 4 repetition maximum and her ability was 70 pounds. Her lifting ability was tested using the lumbar and cervical Progressive Isoinertial Lifting Evaluation (Lumbar P.I.L.E. and Cervical P.I.L.E.).<sup>24</sup> This looked at her ability to lift floor to

waist and waist to shoulder level. Floor to waist ability was 10 pounds and waist to shoulder was 5 pounds. These lifting tests were performed with milk crates filled with weighted plates that are progressed in 5 pound increments. The tests for both lifting and back extension were stopped based on the patient's verbalizing that she could do no more.

## DIAGNOSIS AND PROGNOSIS

According to the *Guide to Physical Therapist Practice*,<sup>25</sup> the patient fit into pattern 4D which is impaired joint mobility, motor function, muscle performance, range of motion, and reflex integrity associated with spinal disorders. The prognosis for this patient was fair for her to return to baseline level of function which included driving, walking 1 to 2 miles 3 times a week, and working full time in retail. The expected range of visits set was 12 visits at a frequency of twice a week. Factors taken into account that may have affected this prognosis negatively included the very high Oswestry Back Pain Disability Questionnaire (ODI) score and the significant fear and doubt noted with this patient in regards to her thoughts of getting better. Factors taken into account that were in her favor were her age, limited issues with her past medical history, and strong social support.<sup>26</sup> This prognosis was set by the evaluating physical therapist after in depth conversation with the prescribing physiatrist about this patient's level of fear and anxiety. The therapist discussed need for a psychological consult with the physiatrist post evaluation and it was decided to first place the patient in a progressive strengthening program with a strong cognitive behavioral component and then reassess.

The prescribing physiatrist felt strongly that a psychological consult may work against the focus of trying to get this patient more active and less fearful and anxious about her pain.

## INTERVENTION

The following quota based exercise program described is the one used in the case clinic. It is the same protocol used at the main hospital where the prescribing physiatrist practices. There are very slight differences due to limitations in facility space but the philosophy, exercise progression, post therapy follow-up, and treatment protocol are exactly the same. The very specifics on when and how this quota-based, nonpain

contingent program started can be read about in previous work.<sup>4,5</sup> All treating therapists have been trained in this treatment protocol and philosophy.

During the PT evaluation, the treatment plan of care was outlined to the patient. She was told that she would be treated twice a week for 6 to 7 weeks in a quota-based, nonpain contingent exercise program. The program would consist of 15 minutes of cardiovascular work, 6 to 8 stretches, and a strengthening program that would incorporate some mat exercises, some free weight exercises, and some machine exercises. The patient was educated that for many people when they first start exercising, their pain may worsen before it gets better. She was told that pain would be similar to muscle soreness as if starting a new sport. The patient was also educated on the pain cycle and how the pain could end up taking over her life if there was no intervention. The patient was instructed that a big part of the treatment took place outside the clinic with homework that she would be expected to do daily despite pain.<sup>27</sup> She was told to manage her pain with 10 minutes of ice as needed. Tips included in Table 1 were also reiterated to the patient during the evaluation.

The patient would come in and begin treatment with 15 to 20 minutes on the bike or treadmill. She would then grab a mat. She would independently perform 3 of each stretch with a 30-second hold. Supervision was provided but the patient was expected to know her stretches. After the stretching routine, the patient was taken through about 45 minutes of strengthening exercises. With each machine, she was given her weights and her repetitions for each set. These numbers were set after her last visit based on her performance during that visit and kept in a training log in her chart. The machines that this patient performed included the back extension for the paraspinal muscles; the total hip machine for the 4 major hip muscle groups; the latissimus pulldown for the latissimus dorsi muscle; the rowing machine for the rhomboids, trapezius, and latissimus; and the leg press for the quadriceps and gluteals. Additional exercises for the upper body included a 4-way neck mat exercise, prone arm raises, one arm row, and prone extensions. Abdominal exercises performed were straight rectus femoris crunches as well as oblique abdominal crunches.

Each session the patient would be seen by 1 of 3 therapists. If she had a pain com-

**Table 1.** Important Educational Discussion During the Evaluation

Important tips for patient education during the evaluation
1) Seeing a bulging disc on MRI does not necessarily correlate with pain. Many asymptomatic people have multiple bulging discs on MRI.
2) Explain how the pain cycle works and why it is important to break the cycle.
3) It is normal to have muscle soreness when starting to strengthen an area that has not been used in a long time.
4) Explain what exactly spine degeneration is. Some people hear the word degeneration and think that their spine is crumbling away.
5) Explain what safe pain is. Patients should be made aware that there should not be increased weakness or paresthesias in their extremities.
6) Explain what normal ROM is and what your goal for them is based on clinical presentation and factors that may limit them (ie, internal fixation).
7) Explain that our goal is for the patient to get independent with a full strengthening program to be able to continue either at home or at the gym.
8) Explain that it is safe to exercise with spine conditions and it is important to regain as much flexibility and strength as possible to help allow the spine to move as normal as possible.

plaint, the therapist would listen to her complaint. They would acknowledge her pain but then they would re-educate about safe pain.<sup>1</sup> The patient was continually educated that her spine needed to regain its capable flexibility and continue to get her trunk musculature stronger. Some of the tips included in Table 1 were reiterated. She was encouraged to stay active and to try to do a little more each day. She was encouraged to slowly return to the activities that she had stopped doing because of her pain. The patient was encouraged to keep a journal to help her keep track of her progress each day.

For the most part, exercises were advanced each visit. For example if the patient performed 5 repetitions of the 4-way neck exercise this visit without difficulty, she would move up to 8 reps next visit. Another example is the latissimus pull down machine. If the patient performed 40 pounds for 10 repetitions and then 30 pounds for 15 repetitions, her next visit she would perform 40 pounds for 15 and 30 for 15. Each time this patient progressed, the therapist would give praise or make a positive remark. If form appeared to be lacking or the patient appeared to really be struggling, the patient's weights were held at the next session. The reason this patient was kept in a one-on-one time slot initially was so that she was able to comfortably ask questions and develop trust in the therapist.<sup>21</sup> The

therapist also wanted to closely supervise her initially because this patient had such significant reservations, fears, and anxiety about her pain. She was hesitant about the program and was afraid that it might make her worse than she already was.

At the 6<sup>th</sup> visit, the patient was reevaluated and it was noted that she was making steady progress in all objective areas as well as verbalizing and demonstrating more ease with her pain. Her ROM measurements were retested as well as her strength. Her gait and posture were reassessed. A brief discussion happened with the patient to assess how she felt she was doing. The patient reported that she was "feeling like a new person." She was demonstrating more independence with setting up the equipment as well and was becoming more motivated each successive visit to continue getting stronger.

Because of the above data, the patient was then placed into one of the group settings. In this setting, she participated in a 30 minute stretching class led by one of the therapists. During this stretching class, the lights were dimmed and relaxing music was played. The patient was encouraged to participate as independently as possible and there were up to 8 patients participating at one time. It was very similar to attending yoga at a gym. She was then taken through her individualized exercise regime but with a little less one-on-one attention.

The group allowed her to watch and get to know different patients going through similar situations as herself.<sup>21</sup> She was slowly encouraged to gain independence on setting up the equipment and each visit, it was discussed with the patient how she would transition these exercises after leaving therapy. The gym was strongly encouraged but this patient did not feel that she would have the resources initially as she had been out of work for some time. Maintaining an active healthy lifestyle was encouraged each visit.<sup>4,5,10</sup>

When the patient verbalized fears of the pain returning, she was told that there was a good chance that she could have flare ups. She was educated however on the negative effects of bed rest and the positive effects of remaining active and strong to keep the flare-ups to a minimum and to a lesser intensity.<sup>4,6,10</sup> She was educated that remaining active kept improving blood flow to the area and allowed the muscles to stay loose and strong to help maintain good posture and give good nutrition to the spine.

During the patients discharge visit, more time was set aside for the therapist to sit down and discuss outcomes and future plans for her. She was again asked to fill out another Oswestry Back Pain Disability Questionnaire (ODI) form. The patient was given complete instructions on how to continue advancing herself with exercises.<sup>27</sup> She was given an individual packet with her goal weights, her current training status, how to advance herself, a list of gyms in the area, and extra training logs to maintain documentation of her progress. She was strongly encouraged to drop by or call if she had any questions.

The patient's husband and mother were very involved in this patient's plan of care in the beginning. They attended a few visits and were encouraged to listen to the therapist's recommendations. They listened to all education that was given to the patient on evaluation as well.<sup>21,26</sup> On their own, as they visualized improvement and more independence/comfort on the patient's part, they became less involved. They were very strong advocates for their family member, the patient. Initially, they did the exercises with her and would go out on her daily walks with her to get her going.

Research shows that low social support is a risk factor for depression in patients with a medical illness.<sup>28</sup> Patients need a lot of social support to help reintegrate them into what they should be doing. In this case, it

was important that the case patient's family members came to visits in order to learn that the therapists did not want the patient to stay inactive and that it was ok to exercise despite the pain. They were also able to see how the therapist's gave positive reinforcement for good behaviors, ie, completion of an exercise. They also saw that pain behaviors were not fed into and the patient was refocused and encouraged to continue.

## OUTCOMES

The patient was able to complete the program within the 6-week time frame set on evaluation. The comparative measurements from initial evaluation to final evaluation can be seen in Table 1. The final Oswestry Back Pain Disability Questionnaire (ODI) score for this patient was 2%. Her cervical ROM measurements were flexion 85°, extension 70°, bilateral cervical rotation 90°, right sidebending 50°, and left sidebending 60°. Her lumbar ROM measurements on discharge were flexion 120°, extension 35°, bilateral sidebending 30°, and bilateral SLR 100°. She was re-tested on the Cybex® back extension machine and her max was 160#. She was able to perform dead lifts with 15# each hand for 2 sets of 15 and she was able to perform front and lateral raises with 5# weights. This patient had resumed working full time and also had returned to walking 1 mile 3 times a week. On her discharge visit, the patient was able to take a written program with a training log and independently perform all exercises without cueing.

One of the main ideas of working with chronic back pain patients is to foster independence in the patient in their ability to manage pain. A key thing that physical therapists look for patients to tell back to them is that when they were sore at home, they would lie down and stretch or use ice if more achy after a long day at work. Physical therapists look for patients to verbalize an understanding of the importance of stretching twice a day and the importance of strengthening 2 to 3 times a week, and lastly performing some type of cardiovascular workout 4 to 5 times a week.

The biggest outcome that the therapists look for is for patients to feel enabled. It is for patients to verbalize that they understand that they may still have a structural abnormality but they know it is safe to return to normal activity. It is for them to return to what they love doing. It is for them to verbalize an understanding of the

difference between feeling sore and actually causing harm to their spine. Lastly, it is for them to demonstrate and verbalize that they are not as afraid of their pain as they were in the beginning.

## DISCUSSION

Physical therapists' beliefs and attitudes about pain can have a significant impact on the patients they are treating.<sup>6,18,19</sup> Therapists traditionally have a tendency to treat based on a biomedical model which follows the assumptions that (1) there is a one to one relationship between the amount of damage and the pain experienced, and (2) the separation of the experiences of the mind and body. When treating chronic pain, the limitations of the biomedical model become quickly apparent to the provider. The evaluating therapist sees that despite muscle spasm, muscle relaxants and massage therapy did not work; despite malalignment, chiropractic or PT manipulations did not work; despite apparent nerve impingement or disc herniation, surgery did not work; despite facet joint inflammation or nerve root irritation, injections did not work; and lastly, despite depression or insomnia, drugs to treat these alone did not help the problem either.

Therapists are faced with very skeptical, angry, and 'defeated' patients when they treat in the chronic pain setting. Therapists must remember that psychological, biological, and social aspects of pain interact to create how the patient responds to and deals with their pain. This is also referred to as the biopsychosocial model.<sup>19</sup>

Many patients with chronic back pain present on evaluation with significant fears and anxiety about their pain.<sup>14</sup> These concerns may be expressed in many different ways such as sadness, anger, ambivalence, and often a feeling of helplessness and despair.<sup>12,14,15</sup> Therapists treating in the chronic pain population need to be able to recognize these characteristics in their patients.<sup>4</sup> If a therapist responds to pain behaviors by holding on an exercise, decreasing weight, or offering other techniques to alleviate pain, they are giving negative reinforcement to the patient. This response is not going to help make these behaviors extinct.<sup>19</sup> This is not to say that allowances or adaptations are never made but that therapists need to know their patients attitudes towards exercise, follow a set goal oriented protocol, and educate their patient on what is and isn't safe pain.<sup>4,5</sup>

If a therapist can help to redirect a patient to focus on improved function and returning to an active lifestyle, the patient's fear will slowly resolve.<sup>13,29</sup> They quickly realize that their pain did not get worse despite the new activity and they will feel more confident in performing that task with more weight for example.<sup>19</sup>

Therapists treating in the chronic pain population need to be able to put aside their own fears about pain perhaps based on personal experience. They need to feel confident in their evaluating skills to rule out red flags and rule in appropriateness for a progressive strengthening program.<sup>19</sup> Referring out to another provider, ie, a psychiatrist is not always the answer as they may have differing beliefs and ideas.

Therapists must communicate effectively and develop a trust from the patients they treat. They also need to maintain a close contact with other health care providers and family members so that they can all be in sync with what type of approach/treatment is best for the patient. If the health care providers are supporting each other in the plan of care, the patient is more likely to develop more trust, be more compliant, and do less doctor shopping.<sup>4,30</sup>

Studies on beliefs of novice physical therapists reveal that they tend to fear chronic pain patients and believe that they do not have probabilities of good outcomes.<sup>19</sup> They revealed frustration and a lack of confidence when treating these patients. Response to this frustration in working with these patients leads to the therapist seeking more biomedical knowledge either from another colleague or further in-service training. Novice physical therapists tend to be unrealistic when they start treating in thinking that they will be able to 'cure' all of their patients.<sup>19</sup>

Because of these above beliefs, it is important that novice physical therapists have regular contact or supervision with a more experienced and confident practitioner in the chronic pain population. This will become increasingly important as direct access becomes more common. In the participating clinic for this study, there were weekly meetings conducted where each patient was discussed. Brainstorming occurred regularly among the therapists to discuss difficult patients. Different personality traits and techniques for how to deal with these personalities were key issues discussed during these meetings.

The goal is to be able to enable the patient not to necessarily cure them. Novice therapists will better understand this goal in working as a team. They will feel more confident approaching a patient and explaining the program goals if they are given optimum support. Currently, the APTA is in strong support of the clinical residency programs. The circumstances in this case study lends strong support to such a programs and the need for therapists to have further training in specific areas.

These meetings also helped the therapists assure themselves that they were all up to date on each patient. Because the patient may be seeing up to 3 therapists, they need to make sure that they are all giving similar feedback. For consistency, it was always the evaluating therapist that would communicate regularly with the physician.

This patient did extremely well with a progressive strengthening program with a cognitive behavioral approach. Not all patients are easily swayed in this direction. Perhaps some of this comes from the fact that her pain was chronic but only for 3 months duration. She also had an excellent support system that was encouraging her to follow through with her therapy.<sup>21</sup> Her age and noncomplicated PMH were also factors in favor of good outcome.

Many patients who get referred to similar programs are more difficult to educate and convince. They tend to become more set in their ways and often become confrontational when they are encouraged to continue exercising despite pain. This can be intimidating to the treating therapist. It is important that the therapist be able to hold strong to their beliefs and use literature to help to provide evidence and support. The more confident they are in their treatment technique, the more trust they will gain from the patient, and often times, the better the outcome.<sup>19</sup>

## CONCLUSION

This case report demonstrated how important a physical therapist's beliefs and attitudes are in the treatment of chronic back pain patients.<sup>22</sup> Therapists are becoming actively involved with treatment including progressive exercise with these chronic back pain patients. They need to understand the difference however between the biomedical versus the biopsychosocial model and be able to apply it to treatment. Perhaps a future plan would be to make a set of guidelines, flow charts, and/or algorithms in how

**Table 2.** Objectives Measures from Evaluation to Discharge

OBJECTIVE FINDING	INITIAL	D/C STATS	GOAL
L/SAROM Flexion	90°	120°	met
L/S AROM Extension	10°	35°	met
SLR Passive Right	60°	100°	met
SLR Passive Left	60°	100°	met
L/S AROM right lateral bend	10°	30°	met
L/S AROM Left lateral bend	10°	30°	met
Cervical AROM – Flexion	50°	85°	met
Cervical AROM – Extension	35°	70°	met
Cervical AROM – Rt. Rotation	30°	90°	met
Cervical AROM – Lt. Rotation	40°	90°	met
Cervical AROM – Rt. Sidebend	40°	50°	55°
Cervical AROM – Lt. Sidebend	40°	60°	met
SPINE Oswestry Back Pain Disability Questionnaire (ODI) Scale	82%	2%	met
SPINE Lumbar Extensors	70#	160#	met
SPINE Lumbar Lift	10#	30#	met
SPINE Cervical Lift	5#	5#	met

to best manage certain personality traits. It is important for new graduates and less experienced physical therapists to have a mentor in order to continue personal growth with little discouragement from treatment outcome as well as to be realistic about outcomes.

Therapists who are unaware of this type of program may have a negative view of this type of program. They may feel that the approach is too aggressive or too rigid for people with this chronic pain. However, when the entire program is analyzed as a whole, there is not a whole lot that is solely unique about this program. The main emphasis of this program is making sure that all facets of the patient are being addressed no matter how uncomfortable or unpleasant they may be to address. The other significant factor is to understand the overall goal and sticking to it even with the difficult patients. Novice therapists will certainly be challenged by their colleagues when they discuss this program but the more they support the theory with evidence, the more other therapists will catch on.

Of note, the more these above techniques are used, the more cost effective treatment

of chronic back pain will be. Third party providers are becoming more and more aware of this treatment protocol and tend to offer further visits for patients if they know that they have not had the opportunity to participate in this type of program. This is extremely important especially to privately owned clinics or general outpatient clinic settings where guidelines and justification for treatment has become more and more scrutinized.

This idea is important for therapists who plan to practice direct access in the near future. Many of these patients will push for further diagnostic testing to be ordered, different medications to be tried, etc. The direct access therapist should be able to comfortably explain why they may place a particular patient into a program like this. They should be able to use current research and literature to scientifically back up their decision making process.

The APTA's mentoring program and the increasing number of residency programs throughout the country are steps that help to support the information and recommendations contained within this case study. With the number of physical therapists



and the percentage of people dealing with chronic back pain in this country, the authors believe that as a profession we need to continue to work on establishing more of these mentoring programs in dealing with patients having chronic pain.

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**Johnson DL, Mair SD (eds). Clinical Sports Medicine. Philadelphia, Pa: Mosby; 2006. 764 pp., illus.**

This text is intended for primary care and orthopaedic sports medicine physicians, yet would be a fine reference for orthopaedic physical therapists and athletic trainers. The purpose of the text is to provide detailed information on commonly seen athletic medical problems and injuries with the goal of giving the most up to date and detailed information on sports medicine. The authors have assembled numerous authors including orthopaedic surgeons, primary care physicians, physical therapists, and athletic trainers who are experts in their fields. Each chapter is organized in a similar manner, beginning with an overview of what is to be covered. The chapter then follows with clinical features and evaluation, anatomy, treatment options, surgery and surgical technique, rehabilitation, return to sport criteria, outcomes, and potential complications. Clinical pearls, pitfalls, and specialized tricks and tips are also discussed.

The book contains 72 chapters and an index. Each chapter contains excellent illustrations, tables, and special boxes that contain key points relating to that chapter. In Section 1, the first 12 chapters include overviews of sports medicine topics. These include the role of the team physician, pre-participation physicals, and on-field emergencies. There are also chapters dedicated to pediatric athletes, female athletes, and the older athlete. General medical issues including cardiac issues and medications are discussed. There is also a chapter on the psychological aspects of healing for the injured athlete.

The next 6 sections deal with specific orthopaedic conditions. They are organized in a consistent manner, making it very user friendly. Each chapter begins with Physical Examination and Evaluation. Principles of arthroscopy are then discussed. Each section then provides details on specific injuries. It ends with a section of specific rehabilitation principles for that section. The

2<sup>nd</sup> section deals with the shoulder. This is the strongest section of the text. There are detailed chapters including chapters on instability, labrum lesion, rotator cuff pathology, scapulothoracic dysfunction, nerve injuries, and pediatric injuries. There is also a special section on internal impingement, which has been shown to be specifically related to the athletic population. The last section of the shoulder deals with shoulder rehabilitation. The 3<sup>rd</sup> section deals with elbow pathology. Chapters that are discussed include instability, overuse injuries, nerve compression injuries, and pediatric elbow injuries. The 4<sup>th</sup> section describes wrist and hand injuries. These include carpal fractures, soft tissue injuries, and specific hand pathologies. The last section is on hand and wrist rehabilitation. The 5<sup>th</sup> section describes low back and pelvis disorders. Specific discussion includes the lumbar spine, abdomen and pelvis, and the hip joint. The 6<sup>th</sup> section is the other very detailed section besides the shoulder section. These include chapters on cruciate ligament, collateral ligament, and meniscus injuries. The patellofemoral joint, articular cartilage, arthritis, and overuse injuries are also detailed. Special sections include graft choices in ligament surgery, complex issues related to ligament reconstruction, multi-ligament knee injuries. There is also a detailed section on knee rehabilitation. The last section is related to the ankle and foot. Specific chapters include ankle ligament injuries and instability, ankle fractures, midfoot, hindfoot, and forefoot injuries. There is also a section on foot and ankle rehabilitation.

This is a very comprehensive, well-organized text. Its strengths include excellent detailed illustrations, historical information, and updated clinical information. This makes this text very practical for the sports medicine physician as well as physical therapists and athletic trainers. The greatest weakness of the book is the lack of continuity with regard to rehabilitation. For example, rehabilitation is not discussed in the elbow, lumbar spine, or hip sections. Despite this shortcoming, I would recom-

mend the book as a reference for clinicians involved in the practice of sports medicine.

*David M. Nissenbaum, MPT, MA, LAT*

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**Konin JG, Wilksten, DL, Isear JA, Brader H. Special Tests for Orthopaedic Examination. 3<sup>rd</sup> ed. Thorofare, NJ: Slack, Inc.; 2006. 373 pp., illus.**

There are multiple changes from previous editions in the third edition of this text. Some of the special tests included in previous editions have been deleted, while others were added. Changes were based on the ease of performing the test, the test no longer being current, or the lack of evidence behind the tests. Arrows depict both the examiner and patient's direction of movement. These arrows are small enough so that they do not distract from the pictures. They are also different shapes and shades of red to delineate the arrows so that the reader is clear about which arrow belongs to the examiner and which arrow belongs to the patient. One of the true strengths of this text is that it has remained concise, easy to reference, practical, and extremely user friendly. The book is spiral bound so it can lay flat to assist the reader in practicing a specific test without worrying if they will lose their page.

The text is divided into 12 body sections. The cervical, thoracic, lumbar, and sacral spine has separate sections that have been dedicated to each region. Duplicate tests that can be performed on different regions such as the Valsalva's Maneuver and are duplicated in each region. When a special test has been given different names, both names are provided. Each special test is formatted in the same fashion. The format includes test positioning, action, positive findings, special considerations/comments, and references. The special considerations/comments section is very useful and clinically relevant. For example, the authors state that the Yergason test is difficult to perform and that palpating the tendon of the long head of the

biceps may be just as accurate. In this section sequencing of special tests is mentioned as appropriate. Each text is accompanied by a clear black and white photo, which shows the test being performed. The photos have been taken to maximize the presentation of each test without shadows or other objects obscuring the details of the test from the reader. The written description of each special test is clear and concise. Used along

with the use of the photo demonstration of the test, each test can be easily duplicated on a patient with confidence.

The last section of this text is dedicated to Contemporary Special Tests. These tests are used in the clinical setting but at this time there is not research to either support their use or refute it. The authors plainly state this fact up front and encourage the reader to both try the tests as well as per-

form research to determine the tests validity and specificity.

Overall, this is an excellent reference text, and would make a worthy addition to the library of either the student, novice practitioner, or advanced practitioner.

*Jeff Yaver, PT*

## 2008 Elections

The 2008 Orthopaedic Section election is rapidly approaching! Don't forget to vote for the offices of 1 Director, 1 Treasurer, and 1 Nominating Committee Member this November. All PT and PTA members will receive a postcard reminder in October, as well as additional reminders as the election period gets closer. Get involved! Plan to cast your vote!!



Joshua Cleland, PT, DPT, PhD, OCS, FAAOMPT received his Master of Physical Therapy degree from Notre Dame College in Manchester, New Hampshire in 2000. He then successfully obtained his DPT degree from Creighton University in 2001. He completed his PhD at Nova Southeastern University in Fort Lauderdale, Florida.



He also completed a fellowship in manual physical therapy through Regis University in Denver, Colorado. He successfully obtained his board certification in Orthopedic Physical Therapy in 2002.

Doctor Cleland is an Associate Professor in the Physical Therapy Program at Franklin Pierce University in Concord, New Hampshire and also serves as research coordinator, Rehabilitation Services of Concord Hospital in Concord.

**CH: Dr Cleland, You have concentrated your research and publication efforts in the area of manipulative treatment of the spine and classification of spine dysfunction. What do you feel is the most important aspect of the findings of your research?**

My research efforts to date have primarily revolved around investigating the effectiveness of thrust mobilization/manipulation in the management of spinal disorders. Additional research efforts have demonstrated that identifying patients most likely to benefit from manual therapy techniques can greatly enhance outcomes (ie, subgrouping). Current data is also suggesting that it is more important to identify which patients with spinal disorders are likely to benefit from manual therapy techniques rather than which technique is most beneficial. That is, patients appear to respond equally well to different types of manipulative techniques directed at the lumbopelvic region. Many of the traditional manual therapy philosophies are based on biomechanical constructs which have been reported to be effective over the years

and our research provides data to support the benefits of thrust mobilization/manipulation techniques in the management of spinal disorders. However, based on current findings I would encourage clinicians to not become paralyzed by unproven complicated algorithms to identify which thrust technique to use and in which direction to

apply the force but rather identify a patient most likely to benefit from an intervention (screen them for red flags and contraindications) and then perform a thrust manipulative technique while closely monitoring patient outcomes.

**CH: In your opinion what is the biggest advantage of using manipulative techniques in treatment of the spine? (or how do you feel about manipulation in comparison to other treatment options?)**

Studies have shown that the majority of physical therapists remain concerned about the risk benefit ratio of thrust procedures directed at the cervical spine. However, the risks of cervical thrust manipulation cannot be viewed in isolation from the risks associated with competing therapies such as NSAIDs and in some cases cervical spine surgery. Recently some of our research findings have demonstrated that dramatic therapeutic benefits can occur with thoracic spine thrust manipulation directed at the thoracic spine in patients with mechanical neck pain while reducing the inherent risks associated with thrust procedures targeting the cervical spine. This evidence suggests that thoracic spine manipulation may be a more prudent choice of initial intervention for patients with mechanical neck pain. Furthermore one of our recent studies also demonstrated that thrust techniques directed at the thoracic spine results in superior short-term outcomes in patients with neck pain when compared to nonthrust techniques. The majority of our studies demonstrate that manipulative procedures result in rapid and dramatic improvement in func-

tion if the proper patient is identified. We are currently in the data collection phase of a study comparing thrust manipulation compared to a strengthening and flexibility program for the management of neck pain and will also be exploring long-term results which will further elucidate the benefits of such techniques.

Similar to the argument for the use of manipulation targeting the thoracic spine (benefits outweigh the potential risks) based on our current research, a similar case can be made for the use of thrust procedures directed at the lumbopelvic region. Colleagues have identified a subgroup of patients with low back pain will respond rapidly and dramatically to thrust techniques directed at the lumbopelvic region. It has also been established that patients with low back pain who do not receive manipulation directed at the lumbopelvic region may be at risk for experiencing a worsening in disability. In lieu of the benefits of spinal manipulative techniques directed at the lumbar spine and minute inherent risks associated with these procedures, clinicians are encouraged to incorporate these techniques into clinical practice with confidence that the benefits outweigh the risks. With the exception of lumbopelvic manipulation and LBP, no data exists to suggest that using a technique will result in benefit and not using it can potentially result in harm for interventions commonly used by physical therapists.

**CH: In addition to your time spent in academia you also are actively engaged in clinical practice. Have you noticed any unique disparities between what is taught in PT education and the realities of clinical practice?**

I believe there are numerous disparities between what is currently being taught in education and clinical practice as it now exists. While I cannot generalize based on my experience, it appears that clinical entropy continues to contribute to the lack of the incorporation of evidence-based practice (EBP) in the examination and management of patients, which is now mainstream in entry level curricula. I often witness clinicians

performing special tests and measures that have been demonstrated in well-designed studies to possess no clinical utility and hence do not provide useful information in the examination process. Additionally, the lack of incorporating EBP in the selection of appropriate interventions is a deviation from what is currently being taught to entry-level students. I should also acknowledge the fact that the lack of incorporation of EBP is not generalizable across all clinics or representative of all clinicians. There is an increasing prevalence of early adopters that are quick to incorporate evidence into clinical practice to guide their decision making. However, there are many more that are resilient to changing their clinical practice patterns.

**CH: Can you briefly describe one of your most challenging patients you have successfully treated?**

For this question I will specifically discuss the successful management of a patient with low back pain that was actually a research subject and treated by one of my colleagues, Sarah Eberhart, DPT. The patient presented to physical therapy with a recent onset of low back pain. She exhibited a significant lateral shift and had to use a cane for ambulation secondary to a report of pain. The therapist who was examining the patient stated that she might have a potential research subject for a study comparing the effects of 2 thrust and 1 nonthrust technique for patients satisfying a clinical prediction rule. Based on the patient's initial presentation (which I only observed for a few seconds), I questioned if the patient was an appropriate candidate for manipulative techniques. The patient was indeed eligible for the study which included satisfying the clinical prediction rule and she did not present with any red flags or contraindications to thrust manipulation. Dr Eberhart was the only clinician available to treat the patient who was randomly assigned to receive a thrust manipulation technique. Sarah treated the patient for 2 sessions with thrust manipulation followed by 3 sessions of lumbar stabilization exercises. Much to my surprise the patient's disability, measured with the Oswestry Disability Index, decreased from a 58% at baseline to a 0% at visit 5. This certainly helped to solidify in my mind that evidence can perhaps more accurately identify which patients are likely to benefit from thrust procedures than clinical intuition.

**CH: What do you view as being the greatest obstacle facing PT practice?**

Clinical research is continually providing more data to support effective and efficient physical therapy management strategies. Following the evidence, would likely improve patient outcomes while simultaneously reducing health care costs in many situations. However, from my perspective, the translation of evidence to practice is an unpredictable and often a stagnant process. It appears that instituting a change in behaviors of practicing clinicians is one of the biggest obstacles facing PT practice. While some therapists are quick to adopt change practice patterns and follow the evidence, others are resistant. I frequently hear comments such as "there is not enough evidence" or "we can't just focus on the evidence." It should be clearly understood that EBP consists of 3 components--the evidence, clinical expertise, and patient values. A succinct integration of these 3 components will assist with maximizing patient outcomes. Certainly there are areas in PT practice where evidence is sparse yet clinicians should act on the research evidence that is available, and use reliable and valid patient-centered outcomes tools to determine what interventions are effective for a particular patient and which interventions are not.

One specific example of the resistance to change in the profession is the use of thrust mobilization/manipulation in the management of spinal disorders. Despite the fact that the *Guide to Physical Therapist Practice* lists that both thrust and nonthrust mobilization/manipulation as interventions within our scope of practice, and there currently exists more evidence for these techniques than anything else we as physical therapists use the percentage of clinicians incorporating these techniques in clinical practice remains suboptimal.

We are currently completing data collection of a randomized clinical trial attempting to identify optimal strategies to change clinician behaviors with the overall goal of improving patient outcomes and reducing costs. To say the least this is a daunting process and it is unclear as to what the optimal strategies are. As part of our professional responsibility, we must provide procedures such as thrust mobilization/manipulation and exercise interventions that are supported by evidence, to our patients with spinal and extremity disorders. I expect there will

continue to be a lack of credible evidence for many of the interventions used by physical therapists. Nonetheless, in an evolving pay for performance health care market it is incumbent upon physical therapists to utilizing techniques grounded in evidence and monitor their effectiveness through the collection of patient outcomes.

**CH: What is the most rewarding aspect of being a physical therapist?**

Clearly the most rewarding aspect of being a physical therapist is working with patients and assisting with alleviating impairments, improving function, and reducing disability. However, as a physical therapist, I have been blessed with the opportunity to use my education to function as a clinician, educator, and a clinical scientist. I truly relish the opportunity to influence entry-level students in their educational endeavors. To have an impact on young professionals during their academic training undoubtedly results in long-term benefits to the students and all patients they come in contact with.

The ability to contribute to the body of knowledge of the profession of physical therapy has certainly been one of the most rewarding aspects of being a physical therapist/clinical scientist. Although the translation of evidence to clinical practice is a slow process, it is apparent that some therapists have begun to incorporate some of our research findings in the management of patients with spinal disorders. I expect that soon some of the evidence we have produced will be used to develop clinical practice guidelines for the management of neck and low back pain. Hopefully at this stage clinicians will begin to recognize the importance of including thrust manipulation in the management of some patients with neck and low back pain.

*Thank you Dr. Cleland for taking the time to share your views with OP readers.*

## HOUSE OF DELEGATES

During the APTA House of Delegates several Orthopaedic Section members were elected or re-elected to positions on the APTA Board of Directors to include:

### Elected Vice Speaker of the House:

Laurita M. Hack, PT, DPT, MBA, PhD, FAPTA

**Elected Director:** Sharon Dunn, PT, PhD, OCS

**Re-elected Director:** Stephen CF McDavitt, PT, MS, FAAOMPT

**Elected Nominating Committee Member:** Paul Hildreth, PT, DPT, MPH

**Re-elected Secretary:** Babette Sanders, PT, MS

## 2007 HONORS & AWARDS CEREMONY

Many association leaders, physical therapists, and physical therapist assistants gathered at the 2007 Honors and Awards ceremony during the Annual Conference and Exposition in Denver, CO to honor and thank their colleagues for the contributions and commitment to practice, research, and education.

Congratulations to the following Orthopaedic Section members who were some of this year's recipients:

### Catherine Worthingham Fellows of APTA

- Carl DeRosa
- Donna El-Din
- Michael T Gross
- Scott M Hasson
- Thomas G McPoil, Jr.
- Lucinda A Pfalzer

### Lucy Blair Service Award

- Anthony Delitto
- Karl R Gibson
- Peg Hiller
- Francis Welk
- Nancy T White

### Henry O and Florence P Kendall Practice Award

- David Tiberio

### Eugene Michels New Investigator Award

- Steven Z George

### Marian Williams Award for Research in PT

- Kathleen A Sluka

### Jules M Rothstein Golden Pen Award for Scientific Writing

- Michael J Mueller

### Helen J Hislop Award for Outstanding Contributions to Professional Literature

- Christopher Powers

### Chattanooga Research Awards

- Michael J Mueller
- Donovan Jones Lott
- Mary K Hastings

### Dorothy E Baethke-Eleanor J Carlin Award for Excellence in Academic Teaching

- Philip W McClure

### Signe Brunnstrom Award for Excellence in Clinical Teaching

- Tara Jo Manal

### FA Davis Award for Outstanding Physical Therapist Assistant Educator

- Norman Lee Johnson

### Dorothy Briggs Memorial Scientific Inquiry Award

- Nancy Crum Landgraff

### Mary McMillan Scholarship Award

- Evan O Nelson
- Rami Said
- Jennifer L. Hide

### Marilyn Moffat Leadership Award

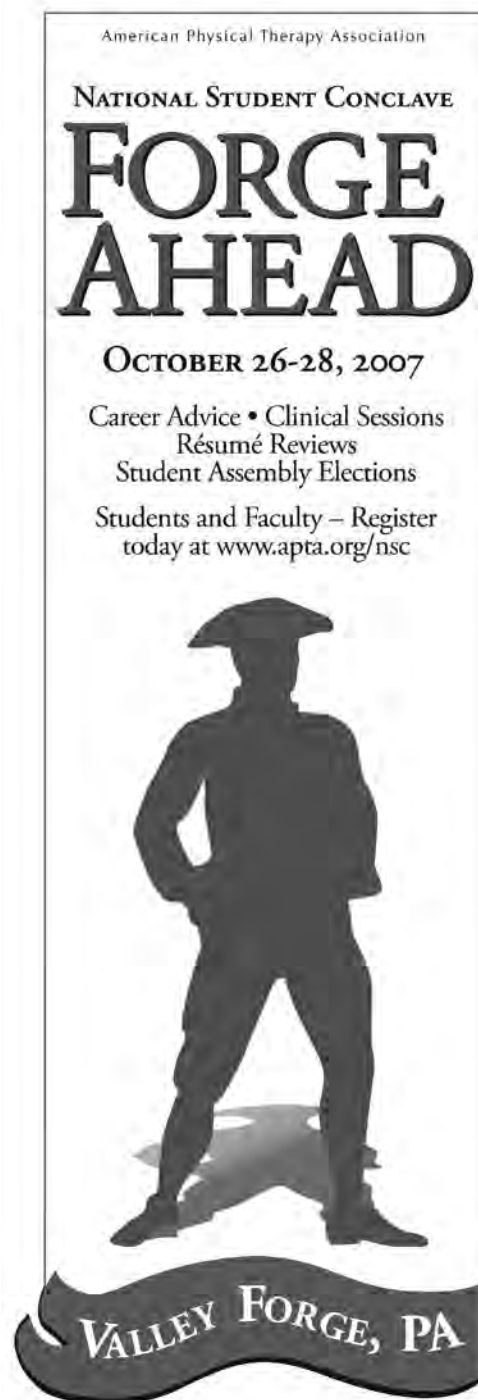
- Ben F. Massey, Jr, PT, MA

### 2007 Maley Lecturer

- Joseph Godges, PT, DPT, MA, OCS

### Minority Scholarship Award for Academic Excellence — PT Students

- Mariana Hinkel





We are only about 6 months away from CSM 2008 in Nashville - it is time to save the date! February 6 - 10, 2008 will find you at the new Gaylord Opryland Resort and Convention Center in Nashville enjoying the renovated hotel and convention spaces along with our renovated schedule of events.

Some of the changes to CSM include consistent beginning and ending times for all programming - allowing you to plan your convention experience a little easier. There will be a shorter opening program (2 hours) on professionalism and a new closing ceremony that is sure to keep you motivated and attentive all the way until the end of conference. The closing program is tentatively scheduled to be a comedy in medicine program with a raffle for free registration to CSM 2009.

Within the Orthopaedic Section's programming, we have also made some changes. You will see that we are co-sponsoring more programs with many of the other Sections. We have moved all platforms to Saturday afternoon allowing you to spend the afternoon attending talks on the latest research—switching to adjacent rooms as your interest dictates. We are also changing our business meeting and re-vamping our social scene. We will start with a “New Section Member/First-time Conference Attendee's” breakfast on Thursday morning. On Friday after the Rose platform, we will have cocktails and hors d'oeuvres from 5:00 – 6:00 PM followed by our new abbreviated business meeting/reception. Our Awards Ceremony will take place immediately after the business meeting, followed by our Rose Award Celebration and party. Friday evening will definitely be hopping with all of this activity!

So save the date! Just take a sneak peak at some of the programming we will be offering and I am sure you will agree, Nashville is THE place to be in February, 2008!

## Tuesday, February 5, 2008

### **Preconferences:**

8:00 AM – 5:00 PM

*Low Back Pain Paradigm Shift: A Treatment Based Classification Approach and Introduction to Lumbopelvic Manipulation* (2-day course)

8:00 AM – 5:00 PM

*Essential Radiology in Physical Therapy: A Practical Course in Film Reading* (2-day course)

## Wednesday, February 6, 2008

### **Preconferences:**

8:00 AM – 5:00 PM

*Low Back Pain Paradigm Shift: A Treatment Based Classification Approach and Introduction to Lumbopelvic Manipulation* (second day of 2-day course)

8:00 AM – 5:00 PM

*Essential Radiology in Physical Therapy: A Practical Course in Film Reading* (second day of 2-day course)

8:00 AM – 5:00 PM

*Using Prefabricated Foot Orthoses in Clinical Practice: Current Evidence and Fabrication Principles* (1-day course)

## Thursday, February 7, 2008

7:00 AM – 8:00 AM

“New Section Member/First-time Conference Attendee's” Breakfast

### **Programming:**

8:00 AM – 10:00 AM

Multi-Section Program

10:30 AM – 12:30 PM

The Biomechanics and Muscle Physiology of Knee Rehabilitation Exercises

10:30 AM – 12:30 PM

Manual Physical Therapy and the Current State of Musculoskeletal Care in the US: Feast or Famine?

10:30 AM – 12:30 PM

Clinical Reasoning in the 21<sup>st</sup> Century: Implications of Biopsychosocial Models for the Clinician, Educator, and Researcher

10:30 AM – 12:30 PM

Evidence-based Approach to Rehabilitation Following Reverse Total Shoulder Arthroplasty

1:00 PM – 4:00 PM

Classification of Patients with Neck Pain: The Next Frontier

1:00 PM – 4:00 PM

Current Concepts Related to Motor Control Training and Rehabilitative Ultrasound Imaging for Patients with Lumbopelvic Disorders (co-sponsorship with the Section on Women's Health)

1:00 PM – 3:00 PM

Evidence-based Prevention and Treatment of Lower Extremity Stress Fractures (co-sponsorship with the Federal Affairs Section)

1:00 PM – 4:00 PM

The Relative Practitioner (co-sponsorship with the Education Section)

1:00 PM – 4:00 PM

Rapid Recovery is a Team Effort: Examining the Individual and Collaborative Roles of the Surgeons, Clinician, Patient, and Researcher on the Journey to Successful Patient Outcomes (co-sponsorship with the Acute Care Section)

## Friday, February 8, 2008

### **Programming:**

8:00 AM – 10:00 AM

Use of the International Classification of Functioning to Develop Evidence-based Practice Guidelines for Common Musculoskeletal Conditions: A Progress Update

8:00 AM – 11:00 AM

Occupational Health PT Special Interest Group Programming—Manual Therapy for the Upper Extremity “-itis”

**8:00 AM – 11:00 AM**

Performing Arts Special Interest Group  
Programming – Evaluation and Treatment  
of Cervicothoracic Pain and Dysfunction:  
Freeing the Performing Artist to Reach  
New Heights

**8:00 AM – 11:00 AM**

Animal PT Special Interest Group  
Programming – Doing the Dog Paddle:  
Comparative Aquatic Physical Therapy  
in Human, Canine, and Equine  
Rehabilitation  
*(co-sponsorship with the Aquatic Physical  
Therapy Section)*

**1:00 PM – 3:00 PM**

Research Information Exchange Center  
*(co-sponsorship with the Section on Research)*

**1:00 PM – 4:00 PM**

Screening for the Lower Quarter:  
Structural Differentiation Diagnosis  
of the Lumbar Spine, Hip, and Pelvis

**1:00 PM – 4:00 PM**

Integrated Control of Stability and  
Movement: Stability Control for Dynamic  
Movements  
*(co-sponsorship with the Neurology Section)*

**1:00 PM – 4:00 PM**

Don't be Afraid of Treating the Male  
Pelvic Floor  
*(co-sponsorship with the Section on Women's  
Health)*

**4:00 PM – 5:00 PM**

Rose Award Platform Presentation

**5:00 PM – 7:00 PM**

Orthopaedic Section Reception/Business  
Meeting

**7:00 PM – 8:00 PM**

Orthopaedic Section Awards Ceremony

**8:00 PM – 11:00 PM**

Orthopaedic Section Rose Award  
Celebration

**Saturday, February 9, 2008**

**Programming:**

**8:00 AM – 11:00 AM**

Pain Management Special Interest Group  
Programming – Physiology and Current  
Medical and Rehabilitative Management of  
Complex Regional Pain Syndrome

**8:00 AM – 11:00 AM**

Foot & Ankle Special Interest Group  
Programming – Foot and Ankle  
Tendinopathies: From Mechanisms  
to Interventions

**1:00 PM – 3:00 PM**

Platform Presentations  
4 Concurrent Sessions: Spine I, Hip/Knee  
I, Shoulder, Occupational Health/Perform-  
ing Arts

**3:00 PM – 5:00 PM**

Platform Presentations  
4 Concurrent Sessions: Spine II, Hip/Knee  
II, Shoulder/Elbow, Foot & Ankle

**5:00 PM – 6:00 PM**

Combined Section (Closing) Programming

**FUTURE APTA NATIONAL MEETINGS**

**Mark Your Calendars Now & Plan to Attend**

**2007**

**National Student Conclave 2007**

[www.apta.org/nsc](http://www.apta.org/nsc)  
October 26–28, 2007  
Valley Forge, PA

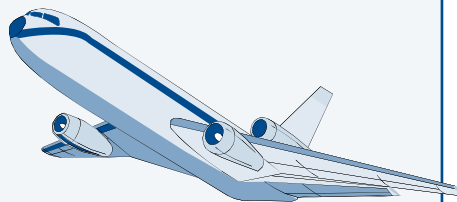
**Preview 2020**

[www.apta.org/preview2020](http://www.apta.org/preview2020)  
November 16–18, 2007  
Phoenix, AZ

**2008**

**Combined Sections Meeting  
(CSM) 2008**

[www.apta.org/csm](http://www.apta.org/csm)  
February 6–9, 2008  
Nashville, TN



**Annual Conference: PT 2008**

[www.apta.org/annualconference](http://www.apta.org/annualconference)  
June 11–14, 2008  
San Antonio, TX

**National Student Conclave 2008**

October 17–19, 2008  
San Jose, CA

**2009**

**Annual Conference: PT 2009**

June 10–13, 2009  
Baltimore, MD

**DID YOU KNOW...**

that Orthopaedic Physical Therapy  
Practice can be accessed online at  
the Orthopaedic Section's website—  
[www.orthopt.org](http://www.orthopt.org)—at the main  
menu click on Publications, then  
on Orthopaedic PT Practice

**Check it out and you will find:**

- the current issue
- archived issues from 2003  
to the present
- instructions for authors
- subscriber information
- advertising information
- ortho PT index listing contents  
of the magazine from 1989  
to the present

Check it out today; you will be  
glad you did.



## Orthopaedic Section, APTA, Inc. CSM 2008 • Preconference Courses Nashville, Tennessee

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### **Low Back Pain Paradigm Shift: A Treatment-based Classification Approach and Introduction to Lumbopelvic Manipulation**

**Tuesday & Wednesday, February 5 & 6, 2008**

**Course Description:** This evidence-based course is designed for any clinician that wants to improve their clinical decision making and manual therapy skills for treating patients with low back pain (LBP). The participants will learn a treatment based classification approach that has been extensively researched over the past 15 years. Students will learn how to utilize current evidence to categorize patients with LBP into one of four treatment categories: manipulation and exercise, activities to promote centralization, stabilization exercises, or traction.

Examination, decision making, and specific treatment approaches will be instructed. The evidence supporting this decision making approach and the various treatment options will be discussed in an interactive and fun environment.

This is not a lecture only course. At least 50% of the course will be spent in lab and each participant will take home the ability to safely and effectively perform several 'high yield' high velocity low amplitude lumbopelvic manipulation techniques as advocated by the Manipulation Task Force. A comprehensive handbook and instructional DVD will be provided.

Don't be left behind! Instruction of these basic manipulative techniques is quickly becoming the entry level standard in DPT programs across the country. They have been shown to be an extremely effective treatment for a subgroup of patients with acute low back pain and should be part of your treatment options.

Break free from old paradigms and integrate this evidence based model into your practice. Utilizing the take home skills instructed in this course will allow you to be effective and enjoy treating patients with low back pain. **(Limited enrollment!)**

**Speaker:** David Browder, DPT

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### **Essential Radiology in Physical Therapy: a Practical Course in Film Reading**

**Tuesday & Wednesday, February 5 & 6, 2008**

**Course Description:** A clinically relevant hands-on course in plain film x-ray, MRI, and CT film interpretation. The session will focus on enhancing film reading skills and integration of radiographic information into rehabilitation planning, modality selection, and outcome assessment. Includes guided hands-on film reading practice of both x-ray and MRI films at view boxes.

**Speaker:** Ross Biederman, DPM –MD

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### **Using Prefabricated Foot Orthoses in Clinical Practice: Current Evidence and Fabrication Principles**

**Wednesday, February 6, 2008**

**Course Description:** The purpose of this workshop is to present to the practicing physical therapist a review of the principles of foot orthotic prescription, including the role of subtalar joint neutral position, as well as the current evidence to support the use of both prefabricated and custom foot orthoses for motion control. The use of the "treatment direction test" to not only determine if foot orthotics are indicated, but to guide the prescription will also be discussed. Afternoon laboratory sessions will provide participants with "hands-on" experiences in modifying prefabricated foot orthoses and to practice performing the augmented low-Dye as well as the Reverse 6 anti-pronation taping techniques. **(Limited enrollment!)**

**Speakers:** Tom McPoil, PT, PhD, ATC; Mark Cornwall, PT, PhD, CPed

# Physical Therapy Advocates Meet with Congressional Offices on Capitol Hill

Robert Rowe, PT, DMT, MHS, FAAOMPT  
Practice Committee Chair

Members of the American Physical Therapy Association (APTA) recently returned from Washington, DC where they learned ways to improve advocacy skills and promoted physical therapist issues to members of Congress. The APTA Advocacy Academy (formerly known as the APTA Federal Affairs Forum) was a huge success this year.

Bob Rowe, the Orthopaedic Section's Practice Committee Chair and Federal Affairs Liaison, attended this event on behalf of the Section. More than 550 physical therapists, physical therapy assistants, and students of physical therapy from 50 states on May 22-24 participated in the American Physical Therapy Association's (APTA) Advocacy Academy and PT Day on Capitol Hill in Washington, DC.

This year's event, held at the Omni Shoreham Hotel in Washington, DC, in-

cluded several roundtable discussions and a variety of speakers, including U.S. Reps Roy Blunt (R-MO), Jim Langevin (D-RI), and Mike Rogers (R-MI). Additional featured speakers included political commentator Mark Shields, Judy Schneider of the Congressional Research Service (CRS), and grassroots specialist Christopher Kush of Soapbox Consulting.

Several awards were presented during Advocacy Academy, including the 2007 Legislative Leadership Award to Ben Massey, PT, and the 2007 Public Service Award to Rep. John Shimkus (R-IL).

Participating physical therapy providers emphasized 3 key issues in the physical therapy profession during hundreds of meetings in Congressional offices, including the need to remove therapy caps on outpatient rehabilitation services, the importance of debt repayment for physical

therapy students choosing to practice in underserved areas, and the benefits of direct access to physical therapy services.

## **Total Cosponsors Added Since the Advocacy Academy & PT Day on Capitol Hill:**

HR 748 (House therapy cap repeal—44 new cosponsors)

S. 450 (Senate therapy cap repeal—4 new cosponsors)

HR 1134 (Adding PTs to the NHSC—36 new cosponsors)

HR 1552 (House Medicare Direct Access—19 new cosponsors)

S. 932 (Senate Medicare Direct Access—2 new cosponsors)

If you have any questions regarding this information, please feel free to contact Bob Rowe at [Robert.rowe@brookshealth.org](mailto:Robert.rowe@brookshealth.org).

## Call for Candidates

Dear Orthopaedic Section Members:

The Orthopaedic Section wants you to know of the several options available for service within the Section opening up in February, 2008. If you wish to nominate yourself or someone else, please contact the Nominating Committee Chair, Kyndy Boyle, at [boylekyn@elon.edu](mailto:boylekyn@elon.edu). Due Date: September 1, 2007. Elections will be conducted the month of November.

### **Open Section Offices:**

- Treasurer: Nominations are now being accepted for election to a three (3) year term beginning at the close of the Orthopaedic Section Business Meeting at CSM 2008.
- Director: Nominations are now being accepted for election to a three (3) year term beginning at the close of the Orthopaedic Section Business Meeting at CSM 2008.
- Nominating Committee Member: Nominations are now being accepted for election to a three (3) year term beginning at the close of the Orthopaedic Section Business Meeting at CSM 2008.

### GREETINGS OHSIG MEMBERS:

#### Update on Certification in Occupational Health

Progress has been slow on completing our petition for specialty certification. So the Board of Directors decided to hold a special working group meeting July 5/6 in Springfield, MO to work on the petition. The petition is a very detailed document with questions relating to our support of specialty certification in Occupational Health PT. We look forward to completing the petition and submitting to ABPTS for their consideration. Stay tuned!

#### PT Loses a Friend

Frank, Dr. Francis John Fearon of Cumming, Georgia, passed away May 16, 2007. He was diagnosed with Brain Cancer in August of 2004. Frank was a beloved husband, father, son, brother, and friend. As a Christian and dedicated member of Perimeter Church in Duluth, his life was defined by his personal relationship with Jesus, his deep love for his family, and his passion to serve others.

Many of us knew Frank through his work in PT. Frank was a Professor of PT at North Georgia College and State University in Dahlonega, Georgia. While maintaining a clinical practice for 27 years, he earned his doctorate in Orthopaedic Physical Therapy from the University of St. Augustine for Health Sciences. He was a Fellow of the American Academy of Orthopaedic Manual Physical Therapists and was well known for numerous presentations and publications. Dr. Fearon greatly impacted his students through his knowledge, gifted teaching, and skillful clinical expertise. He also served the community by helping envision and establish The Good Samaritan Health Clinic of Gwinnett which opened in 2004.

Many of us knew Frank from his involvement with the Orthopaedic Section and OHSIG. He served on the OHSIG Board as Research Chair and later became a member of the Nominating Committee. Frank will be missed by many. Our thoughts continue to be with his family.

#### Welcome!

Welcome new members of the OHSIG. We look forward to your active participation in OHSIG!

*Sincerely,  
Margot Miller PT  
OHSIG President*

### SMARTCARE'S OCCUPATIONAL HEALTH PRACTICE

*Lauren Andrew Hebert, PT, OCS  
SmartCare, Dixfield, ME*

#### ABSTRACT

This article describes SmartCare, a small but comprehensive occupational health physical therapy practice specializing in MSD prevention, treatment, and various on-site services for many client workplaces. This practice is presented here as one example of how a small community outpatient practice may build a diversity of highly marketable workplace on-site consulting services.

Many workplaces suffer excessive claims and costs from musculoskeletal disorders (MSD). Physical therapists may be the best, most expert resource for addressing these problems. This article describes how one small outpatient PT practice provides a comprehensive spectrum of services to client workplaces for reducing the incidence and costs of MSD.

SmartCare is an occupational health physical therapy practice providing a structured MSD control program to workplaces in its community. This is a process of building a sequence of programs and services for client workplaces that grow a culture of education, prevention, early intervention, recovery, and return to work. The process starts with a workplace assessment of MSD issues, followed by an "MSD School" prevention program, followed by arranging a preferred PT provider agreement for treatment services. But this is but a summary. Details follow.

SmartCare's workplace evaluation first assesses MSD risks, ergonomics, and injury management policies to identify problem areas. This provides the client workplace with a needs assessment and proposed action plan. This becomes the basis for an MSD School seminar for managers and supervisors to enlighten them on problems and corrective actions. The objective is to educate and motivate the leadership to commit to positive corrective actions. This is followed by an employee version of an MSD School that teaches musculoskeletal self-care of the working, aging body and personal ergonomics skills. The MSD School implements such tactics as an hourly micro-stretching program, job rotations, ergonomics modifications, and other MSD prevention tactics. These preventive MSD School projects typically lead to a 50% to 70% reduction in MSD claims and lost days, while creating proactive attitudes and policies that facilitate effective injury management.

Once the MSD School has been implemented, the client workplace typically makes a "Preferred PT Provider" agreement with SmartCare whereby employees who are injured are sent to SmartCare for early intervention evaluation, treatment, or triage to the appropriate physician. SmartCare also helps the

workplace to build effective restricted duty policies and procedures to facilitate rapid return to full duty with a minimum of cost and lost time. The early intervention process, combined with the proactive attitudes and policies at the client workplace, has led SmartCare to average only 6 treatment visits per episode of care for their injured employees. For some client companies, this has reduced cost-per-case by 75%.

These are highly marketable outcomes that greatly facilitate building relationships with a growing number of client workplaces. SmartCare has this ongoing clinic relationship with about a dozen local employers, feeding a secure and growing clinical practice. But there is also the business niche of providing primary prevention services to many other workplaces. SmartCare markets its MSD School prevention program to all workplaces statewide. These workplaces pay a consulting fee of \$300 per hour for this structured prevention program (averaging \$30-40 per employee). The resulting reduction in claims, lost time, and injury costs provide these workplaces with a nearly ten to one return on investment. This niche earns SmartCare a substantial income that is totally private consulting fees with no insurance billing, while employees avoid immeasurable suffering and employers save enormous workers' compensation costs.

SmartCare has 2 divisions. One focuses on treatment of injured workers; the other on MSD prevention. One division feeds the other. There is a diversification of PT services and a diversity of clients creating multiple income streams. This reflects a principle of secure business growth by building a wide scope of services, clients, and income streams. This also redefines the roles of physical therapy as going beyond the narrow focus of traditional clinic treatment to include workplace wellness and prevention.

There is a huge untapped market for prevention services for the workplace. There is also untapped potential for a more assertive leadership role by physical therapists within client workplaces for earlier intervention and treatment for injuries, with wider roles in managing restricted duty and return to work recovery efforts. Direct access helps, but lack of that does not preclude these roles.

An extensive illustration of SmartCare's practice format may be examined at SmartCare's web site [www.smartcarept.com](http://www.smartcarept.com).

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### ***About the author...***

*Lauren Hebert, PT, OCS has spent nearly 30 years consulting with hundreds of workplaces on musculoskeletal injury prevention and return to work strategies. He is the author of the IMPACC Neck-Arm School, Back School, and the NO-LOST-TIME workplace consulting programs. He is owner of Smart-Care, an occupational health physical therapy practice providing on-site workplace consulting services to reduce MSD claims and costs.*



### FOOT & ANKLE SURVEY

The following survey is being conducted by the Foot and Ankle Special Interest Group of the Orthopaedic Section to collect clinical and education information.

Part I should be completed by all individuals who complete the survey.

Part II relates to issues of clinical practice and should be completed by clinicians who treat patients with foot and ankle related pathologies.

Part III relates to educational issues and should be completed by individuals who teach in MPT or DPT programs.

Please answer all questions to the best of your ability. Thank you for your time!

#### Part I. Demographic Data:

- A. Highest Academic Degree: BS/BA \_\_\_\_\_  
Entry Level Masters \_\_\_\_\_ Advanced Masters \_\_\_\_\_  
Doctorate \_\_\_\_\_
- B. Years of clinical experience: 0-2 \_\_\_\_\_ 3-5 \_\_\_\_\_  
6-10 \_\_\_\_\_ 11+ \_\_\_\_\_
- C. Primary work setting:  
\_\_\_\_\_ Acute Care Hospital \_\_\_\_\_ Private Practice  
\_\_\_\_\_ Rehabilitation Center \_\_\_\_\_ School System  
\_\_\_\_\_ Extended Care Facility \_\_\_\_\_ College/University  
\_\_\_\_\_ Outpatient Facility  
\_\_\_\_\_ Other (specify) \_\_\_\_\_
- D. Certifications:

#### Part II: For individuals who treat patients with foot and ankle related disorders please answer question 1- 7

- 1) Percentage of time treating patients with foot and ankle related disorders: \_\_\_\_\_%
- 2) Please List the 10 most frequent musculoskeletal conditions you treat in a clinical setting (1 = most frequent)
  - 1. \_\_\_\_\_
  - 2. \_\_\_\_\_
  - 3. \_\_\_\_\_
  - 4. \_\_\_\_\_
  - 5. \_\_\_\_\_
  - 6. \_\_\_\_\_
  - 7. \_\_\_\_\_

- 8. \_\_\_\_\_
- 9. \_\_\_\_\_
- 10. \_\_\_\_\_

3) Of the following 8 neurological conditions please place a number 1-8 rating the frequency that you treat each condition. (1 = most frequent)

- \_\_\_\_\_ Axontomesis \_\_\_\_\_ Neuropraxia
- \_\_\_\_\_ Neuroma \_\_\_\_\_ Drop Foot
- \_\_\_\_\_ Nerve Entrapment \_\_\_\_\_ Clonus
- \_\_\_\_\_ Neuromesis \_\_\_\_\_
- \_\_\_\_\_ Other, List: \_\_\_\_\_
- \_\_\_\_\_ N/A Do not see neurological conditions

4) Of the following 6 dermatological conditions please place a number 1-6 rating the frequency that you treat each condition. (1 = most frequent)

- \_\_\_\_\_ Blisters \_\_\_\_\_ Ulcers
- \_\_\_\_\_ Infections \_\_\_\_\_ Abscesses
- \_\_\_\_\_ In-Grown Toe Nails \_\_\_\_\_
- \_\_\_\_\_ Other, List: \_\_\_\_\_
- \_\_\_\_\_ N/A Do not see dermatological conditions

5) Of the following 6 pediatric conditions please place a number 1-6 rating the frequency that you treat each condition. (1 = most frequent)

- \_\_\_\_\_ Osteochondrosis \_\_\_\_\_ Server's Disease
- \_\_\_\_\_ Epiphyseal Fracture \_\_\_\_\_ Iselin's Disease
- \_\_\_\_\_ Ossification/Maturation Tables \_\_\_\_\_
- \_\_\_\_\_ Other, List: \_\_\_\_\_
- \_\_\_\_\_ N/A Do not see pediatric conditions

6) Of the following 13 surgical conditions please place a number 1-13 rating the frequency that you treat each condition. (1 = most frequent)

- \_\_\_\_\_ Akin Procedure \_\_\_\_\_ Amputation
- \_\_\_\_\_ Mitchell Procedure \_\_\_\_\_ Keller Procedure
- \_\_\_\_\_ Jones Procedure \_\_\_\_\_ Dwyer Procedure
- \_\_\_\_\_ Kidner Procedure \_\_\_\_\_ Ertl Procedure
- \_\_\_\_\_ Hallux Arthrodesis \_\_\_\_\_ Chevron Procedure
- \_\_\_\_\_ Girdelstone Procedure \_\_\_\_\_ Siffert Procedure
- \_\_\_\_\_ Samilson Procedure \_\_\_\_\_
- \_\_\_\_\_ Other, List: \_\_\_\_\_

7) Of the following 3 tests please place a number 1-3 rating the frequency that you are involved with each. (1 = most frequent)

- \_\_\_\_\_ Arteriography
- \_\_\_\_\_ Venography
- \_\_\_\_\_ Electromyography

**Part III: For individuals who engage in teaching students in a University/College setting at either a MPT or DPT program please answer questions 8-26 as it relates to the foot and ankle curriculum.**

**1 = Covered Thoroughly 2 =Partially Covered 3 = Reviewed 4 =Assumed Known 5 = Not Covered**

- |   |               |             |
|---|---------------|-------------|
| 8) Are biomechanics of gait covered, including normal and abnormal biomechanics, terminology, joint axes, and ROM?  | Currently:___ | Ideally:___ |
| 9) Are normal and abnormal gait characteristics covered?  | Currently:___ | Ideally:___ |
| 10) Are foot-types, including cavus and planus, as well as pathomechanics of foot and ankle etiologies covered?   | Currently:___ | Ideally:___ |
| 11) Is shoe-wear prescription covered, including diabetic foot, athletes, and neuropathic foot covered?   | Currently:___ | Ideally:___ |
| 12) Are foot orthotics covered, including casting, posting, material selection, etc.?   | Currently:___ | Ideally:___ |
| 13) Do students receive information about myo-fascial pain and referred pain consistent with Simons and Travell's work?   | Currently:___ | Ideally:___ |
| 14) Does the pharmacology curriculum address diabetic, neurological, and arthritic neuropathies pertaining specifically to the foot/ankle?  | Currently:___ | Ideally:___ |
| 15) Is prophylactic and/or functional taping covered within a laboratory or class setting?  | Currently:___ | Ideally:___ |
| 16) Do students receive information regarding foot/ankle prophylactic/functional bracing?   | Currently:___ | Ideally:___ |
| 17) Do students receive information regarding isokinetic exercise as a type of therapeutic exercise in a lab setting?   | Currently:___ | Ideally:___ |
| 18) Do students receive information regarding proprioception and kinesthetic awareness, including the use of therapeutic exercise to improve these functional bases in a lab setting?                               | Currently:___ | Ideally:___ |
| 19) Do students receive information and guidance on joint mobilizations at the foot/ankle, including glides, slides, and distractions in a lab setting?   | Currently:___ | Ideally:___ |
| 20) Do students receive information on stretching of lower extremity muscles, as they relate to the foot/ankle in a lab setting?  | Currently:___ | Ideally:___ |
| 21) Do students receive information regarding open versus closed-kinetic chain exercises in rehabilitation in a lab or class setting?   | Currently:___ | Ideally:___ |
| 22) Do students receive information regarding proprioceptive neuromuscular facilitation techniques in a lab or class setting?   | Currently:___ | Ideally:___ |
| 23) Do students receive information regarding muscle energy technique in a lab or class setting?  | Currently:___ | Ideally:___ |
| 24) Do students have an opportunity to observe open/arthroscopic surgeries to the foot/ankle, including orthopedic or podiatric procedures as part of class or lab, or during affiliation/internship opportunities? | Currently:___ | Ideally:___ |
| 25) Are students instructed in surgical techniques and procedures, including procedure selection, and rehabilitation protocols?   | Currently:___ | Ideally:___ |
| 26) Are students presented information about physical agents, specifically for dysfunction and derangements related to the foot/ankle?  | Currently:___ | Ideally:___ |

# painmanagement

## SPECIAL INTEREST GROUP

### HOW DO WE THINK?

*John Garziona, PT, AAPM*

In the excerpted article of “How Doctors Think” by Jerome Groopman, a sobering aspect of how Radiologists think was presented in a recent issue of the New York Academy of Sciences.<sup>1</sup> The estimated workload for a Radiologist in a large city private practice ranges from 16,000 to 24,000 cases a year. Some of these cases have only 2 views of the chest to evaluate while others have hundreds of images generated by a CT scan or MRI. In our Radiology classes we, as physical therapists, are trained to do the A, B, C, S check of all Radiographs (A= alignment, B= bones, C= cartilage, and S= soft tissue).

Groopman went on to cite a study where 100 certified radiologists were asked to view a series of 60 chest x-rays including some repeat x-rays. There was a 20% inter-observer variability and 5% to 10% intra-observer variability when asked the question, “is this film normal?” On one of the x-rays, a patient was missing his left clavicle and 60% of the Radiologists failed to identify that abnormality. When the Radiologists were informed that the x-rays were taken as part of an “annual physical examination,” 58% of the Radiologists still missed the missing clavicle. Conversely, when the Radiologists were told that the x-ray was “taken to find a cancer,” then 83% of the Radiologists found the abnormality.

Overall total accuracy rate varied for 73% to 97% for mammography and tuberculosis screening showing a 33% inter-observer, 20% intra-observer variability.

If the Radiologist looked at the x-ray too long there was increased risk of hurting the patient. Many Radiologists identified either false positive or false negative results if they looked at the x-ray for longer than 38 seconds. According to Elsan Samei of Duke University Medical Center, “Currently the average diagnostic error in interpreting medical images is in the 20 to 30% range.”

What does this have to do with the practicing Physical Therapist? Look at your patient’s radiological studies with an open mind, systematically review each structure on the image, and don’t be afraid to question the Radiologist’s interpretation. For example, last week a patient came to my office for a physical therapy evaluation. She was a 21-year-old female who was involved in a head on motor vehicle accident in November 2006. The patient was a passenger and was wearing her seatbelt. She sustained many internal injuries that were surgically corrected as well as a spinal injury which caused her 6/10 pain rated on the visual analog scale. She brought her X-rays and CT scan which I reviewed and found a compression fracture of L4 without significant neurological compromise. The Radiologist’s report focused on a “Burst fracture of the L1 transverse process caused either by trauma or was an anomalous finding” with no mention of the L4 compression. I reviewed her CT scan again and still could not identify the L1 abnormality. Her PT evaluation was

consistent with a right L4 nerve irritability with weakness of the right quadriceps, decrease of right quadriceps reflex and a slight decrease of touch and pain sensation at the anterior right thigh as compared to the left. I called her neurosurgeon to discuss the case to help sort out the discrepancy of the Radiologist’s findings with my own. The neurosurgeon concurred that the patient had an L4 compression fracture and that L1 was perfectly normal which brought back the saying that pilots use regularly “in God we trust, all else we check.”

If there is ever a book written about how Physical Therapists think, I hope that it will emphasize the qualities that we spend longer than a few minutes before formulating a physical therapy diagnosis and treatment plan that has a better than 73% chance of being correct.

Hope everyone had a safe and enjoyable summer.

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### TREATMENT OPTIONS FOR PATIENTS WITH CHRONIC TENDONITIS OF THE LATERAL ELBOW

*Greg Dedrick, PT, ScD, COMT*  
*Texas Tech University Health Sciences Center*  
*Department of Rehabilitation Sciences*  
*Lubbock, Texas*

Approximately 1% to 2% of the population suffers from chronic tendinopathy of the lateral elbow tendon complex.<sup>1</sup> The most frequently affected tendons are those of the extensor carpi radialis brevis and extensor digitorum communis (collectively known as the common extensor tendon). Terminology for tendon pathology of the lateral elbow has been highly debated in recent years. Terms encompass specific etiologies (“itis” or “osis”) seen in the region, however, there does not appear to be one specific term to describe all entities of the lateral elbow tendons.<sup>2</sup> Lateral elbow tendinopathy has been proposed as a general category to describe disorders of the lateral elbow tendons.<sup>5</sup> Clinical findings and treatment options will be presented for recalcitrant cases of tendinopathy of the lateral elbow.

Lateral elbow tendinopathy patients typically have pain with resisted wrist extension, gripping, and tenderness to palpation at the lateral epicondyle. These patients must be differentiated from dorsal interosseous nerve (DIN) entrapment and lateral elbow instability (PLRI). Patients with DIN may have positive resisted supination, radial nerve tension test, and pain distal to the lateral epicondyle.<sup>3,4</sup> Instability patients may have medial elbow laxity that accompanies the signs of tendinopathy along with a pivot shift test.<sup>5</sup> For conservative treatment, commonly

reported methods of treatment for tendinopathy of the lateral elbow include modalities, splinting, stretching, exercise, and massage. Woodley et al<sup>1</sup> performed a review investigating the effects of eccentric exercise on various tendinopathies. Eccentric exercise specific to lateral tendinopathy was more effective than ultrasound and concentric exercise, however, more quality studies will be required to strengthen its efficacy.<sup>1</sup> If a patient has failed conservative intervention specific to the etiology, they may be candidates for one of the following procedures.

McShane et al<sup>6</sup> performed sonographically guided percutaneous needle tenotomy on 58 consecutive patients with confirmed tendinosis of the lateral elbow. The technique is performed by taking an 18-gauge needle from an inferior to superior position into the tendon substance (after local anesthesia) to fenestrate the tissue and abrades the surface of the lateral epicondyle. Ninety five percent (55/58) of patients were followed for a period of 17 to 44 months. Patients were interviewed by phone over aspects of pain and function and satisfaction with the procedure. Eighty percent reported good (17) or excellent (63) results with the procedure. In regards to pain, 81% reported no pain with activity in the week prior to phone interview, 93% reported no pain at night, and 79% reported no pain to mild pain at worst level over the week prior to phone interview. In regards to function, approximately 80% of patients reported no difficulty with opening doors, lifting a cup, opening a jar, and unloading the dishwasher. It appears that this technique is a viable option for patients with chronic lateral tendinopathy that have failed conservative intervention and wish to avoid more invasive surgical procedures.

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## SHOULD WE THROW OUT THE ULTRASOUND?

**Dan Poulsen, PT, MA, OCS**

*Assistant Professor*

*Assistant Director of Clinical Education*

*Texas Tech University Health Sciences Center*

*Lubbock, TX*

Recently the results of a survey conducted to determine the practice tendencies of Orthopaedic Certified Specialists (OCS)

in using therapeutic ultrasound (US) was published. A particularly interesting part of this article was the opinion expressed on the use of US to treat pain. When OCSs were asked about the use of US to treat pain, 39.4% rated it as Clinically Important, 40.4% as Not Clinically Important, and 20.2% as I Would Not Use US in the treatment of pain.<sup>1</sup>

The results indicate that the segment of our profession that is considered most educated in the area of clinical orthopaedics is significantly divided on the importance of this modality for treating pain. The possible reasons for this opinion are many. However, it is likely that one scenario predominates. The majority (60.6%) of clinicians surveyed who labeled US for treating pain as either "not clinically important" or "I would not use" probably practice this way due to a combination of the following 2 points: there is limited research on the subject and most orthopaedic physical therapists hold limited knowledge of what the research states about US and its effect on pain.

Regarding the first point, it is obvious that physical therapists would de-emphasize a modality that, comparatively, has little evidence in the literature. The overwhelming majority of orthopaedic physical therapy research has focused on manual therapy and therapeutic exercise interventions. It is therefore commendable that the majority of orthopaedic specialists have responded to this fact by placing more emphasis on intervention types in their practice that are evidence laden. However, abandoning US altogether because of a relatively small amount of evidence should not occur.

Some evidence supporting the use of US for specific pain types does exist. With knowledge of this evidence most of the 20.2% of orthopaedic specialists who stated that they "would not use US" for pain would likely change their opinion of US to treat pain to "not clinically important."

Those who are opposed to any use of US in the clinic for painful syndromes would be best served by focusing on the below reference; a simple textbook section that focuses on the topic of pain and the effect of therapeutic ultrasound.<sup>2</sup> After reading this short section, it would then be advisable to perform a simple PubMed or CINAHL search using the key words "therapeutic ultrasound AND pain." The reader will likely be surprised at what evidence does support use of this modality in the treatment of pain.

Implementing this modality in the treatment of all patients with painful orthopaedic syndromes is not advisable. The evidence doesn't support such practice. However, US does have limited evidence that does limit the intensity and duration of some painful syndromes. This may be the tool that helps the one patient in ten when everything else tried has failed to reduce pain. Isn't that one patient reason enough to keep therapeutic US as an option for the 20.2% of OCSs that currently "would not use US"?

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### FALL INTO PLACE!

The PASIG has moved forward into fall with many activities designed to benefit and involve membership. There is still time to join a committee and/or step up to run for office and help us all continue to provide useful services to our membership. Beginning with this *OPTP* newsletter, the board has decided to focus on each committee and the various activities that might be more helpful to membership. This issue, due to the timing of the balloting for elections, is focused on the Nominating Committee. This committee is under the direction of Stephania Bell and they have put together an outstanding group of individuals to run for office for 2008. This election will elect a new President, Treasurer, and Nominating Committee member. It is not too late to add to the list and nominate someone you feel would be appropriate or to step up yourself and place your own name on the ballot. Please do not hesitate to contact Stephania, or the other members of the Nominating Committee if you have questions, or nominations.

The next issue will be focused on the Research Committee and their outstanding work on the monthly research citation blasts. There will also be upcoming information on the programming planned for CSM 2008 which will focus on the cervicothoracic region. Please contact Tara Jo Manal if you have any questions or ideas on this topic or future topics for the PASIG programming. The student research scholarship committee is also looking for candidates to apply for the CSM scholarship award for 2008. Please contact Leigh Roberts if you know of a student group that would qualify for this award or if you have questions concerning this process. All of the committees need help and can use new and fresh ideas from the membership. The contact information for the chairs and executive board is listed in this newsletter and is also located on the website at [www.orthopt.org](http://www.orthopt.org).

Thank you again to all whom make this organization so dynamic and please make your new commitment to the PASIG and join us in making an even better PASIG in 2007/2008. Caring for the Arts brings out the best in all of us!

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### CANDIDATES' BIOS AND STATEMENTS FOR 2007

#### NOMINATING COMMITTEE

##### Laura Becica

**Bio:** As a trained dancer, I entered into physical therapy with the desire to work closely with the dance population. At Ithaca College, I pursued this desire through volunteer work at the performing arts physical therapy clinic on campus run by Nicholas Quarrier. I also spent two summers at the ADAM Center in Brooklyn, NY as a volunteer and a student on my final 12-week clinical rotation. During this time, I gained dance research knowledge and clinical skills by working with professional dancers and students of the Alvin Ailey American Dance Theater. During my graduate year at Ithaca College, I worked as a research assistant to Deborah Nawoczenski in the Foot and Ankle Movement Analysis Lab. My research and clinical experiences, combined with my dance experience have prepared me for entering into a physical therapy career in dance medicine upon my graduation with an entry level doctorate in November 2007.

**Position Statement:** I joined the APTA's Orthopaedic Section and PASIG in 2006 as a student PT. During this year I attended CSM and PASIG programs in Boston. I will be graduating in November 2007 with an entry-level doctorate of physical therapy from Ithaca College and plan on pursuing a career in orthopaedics and dance medicine. My clinical affiliation and volunteer experience at the Adam Center and Alvin Ailey have introduced me to the world of dance medicine and research. While on this clinical affiliation I began to understand how important the PASIG is in assisting researchers and clinicians in the service of performing arts physical therapy. Responsibilities of PASIG nominating committee members include preparing a list of candidates for PASIG election, and implementing and supervising the election policies and procedures. Such tasks require convivial individuals skilled in approaching new individuals and disseminating information. My leadership experience as a research assistant at Ithaca College and the Adam Center along with my role as captain of my college dance team have equipped me to handle such responsibilities. Recruitment of subjects to participate in studies, leading a research project and holding dance auditions make the recruitment of PASIG members to run for office a familiar task. My ability to develop rapport, as well as organize and complete tasks in a timely manner will be valuable during interaction with PASIG members and when coordinating with the Orthopaedic Section on projects. It would be an honor to serve the PASIG in this capacity.

**Jason Grandeo**

**Bio:** I am a physical therapist with Body Dynamics Inc. in Arlington, Virginia. I am a Board Certified Orthopaedic Clinical Specialist and will begin classes for my DPT this August. I received my master's degree in physical therapy from MCP Hahnemann University in 2001. I received my bachelor's degree in athletic training from Lock Haven University and my master's from Ohio University. In addition to treating clients at Body Dynamics, I also provide wellness services and teach in our group class setting. In 2005 I began providing physical therapy to The Washington Ballet and in 2007 was named Co-Director of their Health and Wellness program. I provide educational lectures to Washington Ballet students and treat dancers in community-based and collegiate level dance companies.

**Position Statement:** I have learned that the PASIG is a progressive, informative, and valuable resource to individuals that work in the performing arts world. I would like to see PASIG become a more visible resource for physical therapists that rarely come in contact with performing artists who need a place to gather information to better treat their clients. More information regarding wellness programs such as cross training for injury prevention and proper nutrition needs to be passed on to not only therapists that treat performing artists, but also to individuals that employ performing artists. I believe that PASIG has to continue to strive to become a resource for other professionals such as doctors, nutritionists, and counselors that come in contact with our clients. At this time in my career I would like to become more active in groups that represent me as a professional as well as the individuals that I treat. As a member of the Nominating Committee I will help find physical therapists that represent our goals, mission, and vision and make them part of our team. I feel that is important for PASIG to be a vital component in achieving the goals of Vision 2020. As a member of the nominating committee, I will be able to show other clinicians why it is important to be a part of our SIG.

**Cora Maglaya**

**Bio:** I am currently completing a sports fellowship with Duke University, specializing in providing rehabilitation for Division I athletes. I received my physical therapy degree from Daemen College in Amherst, NY. I received my BS degree from the University of Illinois at Chicago, double majoring in Athletic Training and Kinesiotherapy. I am a lead physical therapist for the American Dance Festival in Durham, NC that provides rehabilitation, injury management, and prevention programs for dancers from across the nation. My dance background includes being a captain for the nationally ranked University of Illinois at Chicago Dance Team and a dance instructor for the Universal Dance Association. I have provided educational lectures nationwide to physicians, physical therapists, athletic trainers, and the public. I actively participate in research, including authoring a case report at Duke University, serving as a research committee member for the PASIG, and raising research funds allocated to the APTA Sports Section.

**Position Statement:** It is vital for education, teamwork, and evidence-based practice to be used for building blocks of success in daily clinician practice. My educational background as a physical therapist, certified athletic trainer, and kinesiologist reflects my strong pursuit and commitment for learning. As I am beginning to develop my own niche for dance medicine, I have participated as a physical therapist for the American Dance festival hosted by Duke University Sports Medicine. Evaluating and treating dance injuries with talented scholarship dancers has sharpened my clinical skills in this patient population. I am continuing to learn more about dancers' injuries serving as the lead principal investigator for a Duke Sports Medicine research study. Contributing to the monthly citation blasts as a research committee member for the PASIG has heightened my awareness for evidence-based medicine in dance. In continuing my career goals, if selected as a Nominating Committee Member, this would give me the opportunity to seek others who are looking to make an impact in this field. I feel that my strong work ethic, perseverance, and knowledge make me a strong candidate to serve as a Nominating Committee Member for the PASIG. I would be honored if selected and would promise to continue my pursuit of excellence in dance medicine.

**TREASURER****Amy Humphrey**

**Bio:** I received my Bachelor of Arts in Dance and Spanish in 1998 from James Madison University and then received my MS, PT from Widener University in 2002. I completed my manual therapy certification (MTC) through University of St. Augustine in 2007 and am currently a DPT candidate there. From 2003 to 2005, I served as director of the Physical Therapy and Pilates Program at the Kirov Ballet Academy in Washington, D.C. For the past 4 years I have worked at Body Dynamics, Inc., a private orthopaedic practice specializing in treating performing artists. I also serve as the CCCE at my facility. I have treated performing artists from the Washington Ballet Company, Hubbard Street Dance Company, Ford's Theater, Ashburn Ice Arena, Skatequest in Reston, and other traveling companies. My professional contributions include volunteering at the Arlington Free Clinic, advocating for pending legislation, and presenting at the 2004 IADM Conference.

**Statement:** I am eager to serve in the position of Treasurer for the Performing Arts Special Interest Group. My leadership and involvement in the world of physical therapy has been varied up to this point in my life. As a physical therapist that specializes in Performing Arts Physical Therapy, I am currently looking for new opportunities to become more involved with the Performing Arts Special Interest Group. As the former director of the Physical Therapy and Pilates Program at the Kirov Ballet Academy located in Washington, D.C., I was responsible for preparing and presenting a budget for the following year. Also, I have used my organizational skills as the Clinical Coordinator of Continuing Education at my facility to arrange student affiliations, projects, and research agendas in addition to educating student physical therapists.

## PRESIDENT

### Leigh A. Roberts

**Bio:** I am currently owner and director of L A R Physical Therapy in Columbia, MD. I received my Master of Physical Therapy in 1999, and my Doctor of Physical Therapy in 2005 from Shenandoah University. I am an Orthopaedic Clinical Specialist and a Polestar Pilates Rehabilitation Certified Practitioner. Throughout my career, I have worked with dancers from adolescents to professionals, locally and nationally, including the Alvin Ailey American Dance Theater, Ailey II, The Washington Ballet, Universal Ballet Academy, and numerous Broadway touring groups. I am a member of the International Association of Dance Medicine and Science and have presented nationally and internationally on dance medicine.

**Statement:** I became active in the PASIG 3 years ago when I was elected to the position of Treasurer. In that time, my understanding of PASIG's role in the Orthopaedic Section and the larger physical therapy world in general has expanded. I see the PASIG as a leader for other SIGs in our commitment to providing member services, staying abreast of cutting edge issues, and our creativity in treating patients. If elected as President of the PASIG, I would: (1) work with the committees to continue to provide and expand member services, (2) continue to develop and realize the PASIG action plan, which is based on the Description of Advanced Clinical Practice for performing arts, and (3) investigate ways to educate the physical therapy community-at-large in the basics of dance medicine.

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### HELLO!

I hope that this finds all of you well.

Following are two essays by Lin McGonagle, MSPT, LVT, the present Treasurer and Founding President of the Animal Physical Therapy Special Interest Group. The practice of animal physical therapy and rehabilitation has come a long way in a short time and Lin addresses a few of the more challenging clinical problems encountered in her practice. I hope that you will find this information to be useful.

I invite any APTSIG member to contribute to our newsletter. We are looking for interesting and relevant clinical articles, especially literature reviews and case studies.

We are continuing to move forward with implementation of our Strategic Plan and find that we are exceptionally busy with our legislative efforts through our state liaison network (now 32 members strong!) and Practice Analysis. We're attempting to maintain open and frequent communication with our membership through blast emails, listserves, and these newsletters. Please let us know if there is something more that we can do for you, our members.

We hope to soon hear and pass on to you a full report from Steve Strunk and Charlie Evans who recently attended WCPT for some special meetings regarding animal physical therapy and rehabilitation. As well, I will be attending and addressing the APTA State Government Affairs Forum in September and our Vice President, Caroline Adamson Adrian, will be attending the APTA Annual Conference in June and Orthopaedic Section Fall Meeting in October. We both look forward to meeting more APTSIG members at the American College of Veterinary Surgeons Symposium in Chicago in October and again at CSM 2008 in Nashville in February. It's shaping up to be another busy year!

Best wishes to all of you for a happy and healthy summer season!

*Amie Lamoreaux Hesbach, MSPT*

PS: Just announced, the IAVRPT (International Association of Veterinary Rehabilitation and Physical Therapy) will be holding its fifth VetPT Symposium August 13-16, 2008 at the Hyatt Regency in Minneapolis, Minnesota. We hope to see you there!

### EQUINE PERIPHERAL NERVE INJURY

*Lin McGonagle, MSPT, LVT*

*Morningstar Animal Physical Therapy  
Genoa, NY*

Peripheral nerve damage can be caused by degenerative changes, metabolic processes, neoplasm, nutritional deficits, infection, inflammation, toxic influences, and most commonly, by trauma. In horses, trauma can occur in many situations such

as halter-breaking accidents, athletic injuries, trailer or road traffic accidents, pasture injuries, falls, kicks, and gunshot wounds. The nerves most often involved in the forelimb are the brachial plexus (C6-T2), suprascapular (C6-C7), and radial (C8-T1). In the hind limb, the nerves most frequently injured include the sciatic (L6-S2), femoral (L4-L6), and peroneal (L6-S1). Nerve injuries can be classified as neurapraxia, axonotmesis, or neurotmesis. Edema, pain, wounds, gait changes, impaired balance, and atrophy within 7 to 10 days are signs of nerve injury.

Rehabilitation of peripheral nerve injuries requires a team approach where several professionals contribute to the outcome. Team members might include veterinarians specializing in orthopaedics and neurology, a physical therapist, a veterinary technician, the primary caregiver, the trainer, an orthotist, and farrier.

A physical therapy evaluation begins with taking a history and consulting with veterinarians for medical and diagnostic testing results. The physical examination addresses wounds, atrophy, reflexes, tone, skin sensation, gait, completing a clinical EMG using FES, joint range of motion, muscle girth, balance, proprioception, edema, pain, weight-bearing abilities, and observing function and behavior. Locating the injury site and identifying the muscles are the focus of the examination. Prognosis can be difficult to estimate initially, and is affected by the severity of injury, distance from the injury to the muscle(s) involved, acute vs. chronic problem, and complications from wounds or fractures.

Goals for physical therapist intervention include return to full function, increased strength of affected musculature, promotion of normal sensory input, improved weight bearing, improved gait, increased balance, increased endurance, and improved joint stability. The initial rehabilitation protocol is aimed at preventing fractures from falls, preventing pressure sores, and preventing abnormal loading of joints. Utilizing thick bedding, confinement to a small safe area, using orthotics or a sling support, and enhancing the environment are strategies to prevent problems. Treatment may include electrical stimulation, massage, ice, heat, ultrasound, laser, acupuncture, joint approximation, and balance activities. Neurotrophic stimulation (electrical stimulation) is a key component of the rehabilitation protocol and may be recommended 3 to 5 times each week for approximately one hour. An initial active exercise plan involves hand walking on straight level surfaces, weight shifting, and walking over ground poles or Caveletti's. Treatment can be progressed by adding walking backwards, circles, and figure eights. Balance and proprioception are challenged by using uneven surfaces, sand, water, and moving around obstacles (ie, TTEAM serpentine and star). Strength and gait activities can be progressed by adding hills, inclines, swimming, stepping in/out of a trailer, and gradually raising the Cavaletti's. Trotting, cantering and pasture turnout can be attempted as joint stability improves.

Recovery time varies from a few weeks up to 9 to 12 months or more. Additional factors that affect outcome include the physical status of the animal, owner compliance and financial commitment.

## PHYSICAL THERAPY INTERVENTION IN THE VETERINARY CRITICAL CARE UNIT

*Lin McGonagle, MSPT, LVT*

*Morningstar Animal Physical Therapy*

*Genoa, NY*

Before any physical therapy intervention is initiated, and especially in the treatment of the critical care animal patient, a thorough veterinary examination with orthopaedic and neurological assessment (including radiographs) is critical to rule out fractures, spinal cord injury, or vertebral instability.

### Evaluation

The physical therapist assesses respiratory function, the wound site (ie, size, type of drainage, skin condition), joint range of motion, edema, pain, muscle girth, neck and limb mobility, sensation, reflexes, skin integrity, weight bearing skills, balance, the patient's ability to change position, and its overall level of function.

### Intervention

A plan for treatment would be developed by the physical therapist with the veterinarian and would be individualized, dependent on evaluation findings. The following table lists various physical therapy techniques that might be appropriate for treatment of critical care animal patients in relation to the complication present.

Additional techniques that can be used during the rehabilitation process include hydrotherapy, gait training, weight bearing and weight shifting activities, functional training, mobility cart, standing device, and orthotic or prosthetic prescription and training, Proprioceptive Neuromuscular Facilitation, functional electrical stimulation, iontophoresis, LASER, and myofascial release.

Treatment considerations include:

- Clipping of wool or fur prior to the application of physical therapy modalities,
- Skin irritation or undue pressure from slings (i.e. pregnancy or respiratory complications),
- Fatigue,
- Loss of joint motion or soft tissue contractures,
- Muscle atrophy,
- Swelling in dependent limbs, and/or
- Prevention of pressure sores.

Unfortunately, common complications in the critical care animal patient include urine scald, poor appetite, dehydration, pneumonia, constipation, and changes in behavior (ie, a decreased interest in activity).

### Goals for Physical Therapy Intervention

The obvious long-term goal of the physical therapy intervention is for eventual return of the patient to its previous level of function. In the short term, goals might include: increasing speed and quality of movement, increasing strength and endurance, minimizing secondary complications, increasing flexibility, normalizing the gait pattern, and/or improving standing balance.

Complication	Physical Therapy Technique
Pneumonia	Postural drainage, percussion, vibration
Atelectasis	Positioning, postural drainage, percussion, vibration
Mechanical ventilation	Postural drainage, percussion, vibration, positioning, PROM, massage
Peripheral edema	Compressive bandaging, positioning, massage, ice, PROM, mobility activities, electrical stimulation
Head trauma or decreased consciousness	Positioning, PROM, massage, postural drainage, assisted coughing
Paralysis, spinal cord disease, or trauma	Positioning, postural drainage, PROM, massage, electrical stimulation, sensory stimulation, joint approximation, assisted walking
Prolonged recumbency	Postural drainage, percussion, vibration, positioning, PROM, massage, compression bandages, assisted walking, balance and strengthening exercises
Pain	Ice, positioning, TENS, heat, massage, ultrasound, relaxation, acupressure
Open wounds	Positioning for pressure relief, electrical stimulation, laser, whirlpool
Closed wounds	Ice, compression, positioning, ultrasound, whirlpool
Fractures	Positioning, PROM to adjacent joints, isometrics, electrical stimulation, assisted walking, balance and strengthening exercises
Muscle spasms	massage, ice, ultrasound, electrical stimulation

# Reach Your Professional Goals through Independent Study Courses

Designed for Individual Continuing Education



## 2007 COURSES

- **Diagnostic Imaging in Physical Therapy** (March–May) (This is a 3-monograph course. Registration fees: \$80 Orthopaedic Section Members, \$155 APTA Members, \$205 Non-APTA Members. Fees include shipping and handling.) (15 contact hours)
- **Reimbursement Strategies for Physical Therapists** (March–May) (This is a 3-monograph course. Registration fees: \$80 Orthopaedic Section Members, \$155 APTA Members, \$205 Non-APTA Members. Fees include shipping and handling.) (15 contact hours)
- **Vestibular Rehabilitation, Dizziness, Balance, and Associated Issues in Physical Therapy** (May–October)
- **Basic Science for Canine Physical Therapists, 2nd edition** (October–December) (This is a 3-monograph course. Registration fees: \$80 Orthopaedic Section Members, \$155 APTA Members, \$205 Non-APTA Members. Fees include shipping and handling.) (15 contact hours)
- **Basic Science for Equine Physical Therapists, 2nd edition** (October–December) (This is a 3-monograph course. Registration fees: \$80 Orthopaedic Section Members, \$155 APTA Members, \$205 Non-APTA Members. Fees include shipping and handling.) (15 contact hours)

## CURRENT COURSES AVAILABLE

- **Current Concepts of Orthopaedic Physical Therapy, 2nd edition** (This is a 12-monograph course. Registration fees: \$240 Orthopaedic Section Members, \$490 Non-Orthopaedic Section Members. Fees include shipping and handling.) (84 contact hours)
- **Pharmacology**
- **Strength and Conditioning** (Limited quantity available.)
- **Postoperative Management of Orthopaedic Surgeries** (Limited quantity available.)
- **Orthopaedic Interventions for Pediatric Patients: The Evidence for Effectiveness** (Limited quantity available.)
- **Marketing Techniques for Physical Therapists** (This is a 3-monograph course. Registration fees: \$80 Orthopaedic Section Members, \$155 APTA Members, \$205 Non-APTA Members. Fees include shipping and handling.) (15 contact hours) (Limited quantity available.)
- **Clinical Applications for Orthopaedic Basic Science** (Limited quantity available.)
- **Medical Screening for the Physical Therapist** (Only available on CD.)
- **Physical Therapy for the Cervical Spine and Temporomandibular Joint** (Only available on CD.)
- **Evidence-based Practice for the Upper and Lower Quarter**
- **Including the Patient in Therapy: Psychological Considerations and PT Delivery** (previously titled Including the Patient in Therapy: The Power of the Psyche)

## HOW IT WORKS

Each independent study course consists of 3, 6, or 12 monographs depending on the topic that you receive in a binder along with a final examination, an answer sheet, and a continuing education form. Each monograph is 16 to 28 pages in length and requires 4 to 6 hours to complete. The monographs contain 10 multiple-choice review questions for your self assessment (answers are on the last page). The final examination consists of multiple-choice test questions. To receive continuing education, registrants must complete the examination and return the answer sheet and CEU form and must score 70% or higher on the examination. Registrants who successfully complete the examination will receive a certificate recognizing the contact hours earned.

For courses in progress, registrants receive monographs monthly and must return their examination within 4 weeks of receiving the final monograph. For completed courses, registrants receive all monographs and must return the examination within 3 months. Exams for *Current Concepts of Orthopaedic Physical Therapy* must be returned in 4 months.

If notification of cancellation is received in writing prior to the course, the registration fee will be refunded less a 20% administrative fee. Absolutely no refunds will be given after receipt of course materials.

## EDUCATIONAL CREDIT

Fifteen contact hours will be awarded for completion of 3-monograph courses, 30 contact hours will be awarded for 6-monograph courses, and 84 contact hours will be awarded for the 12-monograph course. A certificate of course completion will be awarded to participants after successfully completing the final examination. Only the registrant named will obtain contact hours. No exceptions will be made. Registrants are responsible for applying to their State Licensure Board for CEUs.

## FOR MORE INFORMATION

Call toll free 800-444-3982

## REGISTRATION FEES FOR 6-MONOGRAPH COURSES\*

- \$160 Orthopaedic Section Members
- \$260 APTA Members
- \$335 Non-APTA Members
- \*\$10 shipping and handling included



## REGISTRATION FORM

Course Title \_\_\_\_\_

Name \_\_\_\_\_ Credentials (circle one) PT, PTA, other \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Daytime Phone \_\_\_\_\_ APTA# \_\_\_\_\_ E-mail Address \_\_\_\_\_

Please check:  Orthopaedic Section Member  APTA Member  Non-APTA Member  
(Wisconsin residents add applicable sales tax.)

I wish to join the Orthopaedic Section and take advantage of the membership rate.  
(Note: must already be a member of APTA.)  I wish to become a PTA Member (\$30).  
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Fax registration and Visa, MasterCard, American Express, or Discover number to: (608) 788-3965

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**TOTAL**

Please make checks payable to Orthopaedic Section, APTA.  
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